

MEMOIRS

OF THE

QUEENSLAND MUSEUM

to show, probably not many more
to not more days as a best result, and answer, though necessarily depending on
development.

If, however, these dedications are likely to cause you trouble
and if you do not care to print them I will have to give in. My
viewpoint seems opposite to yours in regard to this. The aspects are just
the ones I am aiming at and if they would take more interest in the
relation of things and less in themselves per se, everyone would be the gainer.
If you would agree to compromise by writing the dedication to the Entomophiles
and retaining the one to the Paleontologists I would be pleased. But I leave the
matter in your hands, since you must be judge of what the Memoirs is to
contain and I have no right to quarrel about it.
Hoping to see the proofs before long,
Yours sincerely, A. J. G. G. G.

Nelson (Cairns),
Oct. 21, 1913.

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PLATE 13

A. A. Girault aged 29 years. Taken from a wedding photograph
supplied by his son Ernest Girault.

A CHECKLIST OF THE TYPES OF AUSTRALIAN HYMENOPTERA DESCRIBED
BY ALEXANDRE ARSENE GIRAULT: I. INTRODUCTION, ACKNOWLED-
GMENTS, BIOGRAPHY, BIBLIOGRAPHY AND LOCALITIES

EDWARD CLIVE DAHMS
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ABSTRACT

Girault was a controversial entomologist who is remembered more for his unconventional privately published papers than for his great contribution to the taxonomy of parasitic wasps (Chalcidoidea). His driving force in life was not one of personal fame and fortune but rather the taxonomy of the Chalcidoidea; this plus his uncompromising direct nature, resulted in much financial and professional deprivation. The problems of his working life were compounded by the world economic depression accompanying the two World Wars. The resulting publication restrictions on an author as prolific as Girault proved a great additional frustration. The sixty-three papers which he published using his own meagre funds were an attempt to alleviate the situation and, at the same time, were used as a vehicle for expression of his frustrations and philosophies. It is this part of his privately published papers which has resulted in much misunderstanding. The detailed biographical information which is presented leads to a better understanding of Girault and his work. The amount of work he was able to achieve under such trying conditions is a tribute to his ability and dedication. The bibliography contains 462 references and contains all of his privately published papers which are considered to be scientific publications as defined by the Rules of Zoological Nomenclature. They are arranged chronologically by date of issue as published in the volumes or parts in which the papers occur. This part of the checklist also contains a list of over 500 localities which is made up of all localities to be found on Australian material determined by Girault, in addition to a few non-Australian localities which are from foreign, Girault-determined specimens in Australian institutions. The Australian localities have map references and their positions are shown on maps.

The unusual, privately published papers by A. A. Girault have overshadowed his more conventional papers and led to the view that he was temperamentally disturbed. Before launching into a detailed biography of Girault it is perhaps appropriate to briefly introduce him and his work.

A. A. Girault was an American entomologist who worked in Australia from 1911 until his death in 1941, except for a brief return to the U.S.A. in 1914 to 1917. During the years in Australia he retained his American citizenship which caused him considerable anxiety through job insecurity from 1923 onwards. The three year sojourn in the U.S.A. was also to have repercussions, and his experiences there resulted in the production of the first of his privately published papers. His

research speciality was the Hymenoptera, particularly the taxonomy of small parasitic wasps belonging to the Chalcidoidea, although he also published upon thrips (Thysanoptera), bugs (Miridae) and various non-taxonomic subjects. His intense love of the Chalcidoidea together with a somewhat eccentric nature led him, and his family, into much hardship. Personal economic difficulties, lack of facilities for taxonomic work, and lack of suitable employment where he could pursue taxonomic research were his constant companions. World economic depression during and between the two World Wars meant funds for publication were restricted. Consequently he suffered the added frustration of not being able to see much of his labour bear fruit: his large monograph on Australian Chalcidoidea, begun in 1917, remained unpublished at his death.

GIRAULT'S CONTRIBUTIONS TO ENTOMOLOGY

The Chalcidoidea are minute parasites and hyperparasites of other insects. Biologically they are important in the ecology of insect populations and some species are useful as natural control agents for pest species. In practical biological control programmes, parasitic species are introduced from one country to another. This demands accurate taxonomic work.

Girault was a prodigious worker, as can be seen from the bibliography, and he described thousands of new forms from Australia alone. Unfortunately his considerable contributions to the taxonomy of the Chalcidoidea are marred by confusion. Some of the confusion can be blamed directly upon his unsystematic approach, but a good deal can be related to factors beyond his control — personal and World economic hardship, lack of taxonomic facilities, etc. — which are discussed more fully in the biography to follow. Girault has therefore left taxonomists a legacy which requires discrimination in assessment on the part of investigators.

GIRAULT'S TYPES

The Queensland Museum is fortunate to have the bulk of Girault's types of Hymenoptera and Thysanoptera. At the beginning of my curatorship at the Museum these types were stored in twelve microscope slide drawers, up to three deep in places, and the pinned specimens were tightly packed into nine cabinet drawers. Because of Girault's habit, forced upon him by economic conditions, of mounting more than one type specimen per slide, and because these were often of different species, genera, families, or even orders, the slides had been stored without order. Locating particular types in this system was a very lengthy process. Work began on this collection as part of normal curatorial duties. The slides are now stored alphabetically by genus with blank slides providing a cross-reference to multiple mountings, and the pinned material is in new cabinets in the tray system.

The attempt to unravel the types was at first a fairly modest venture but has grown enormously due both to dramatic increase in requests to the Museum from other institutions for information as well as my personal interest in the group. A grant from the Interim Council of the Australian Biological Resources Study (now Australian Biological Survey) allowed travel to other institutions, including the U.S. National Museum, which house material determined by Girault, to catalogue their holdings of his types of Australian Hymenoptera. To make the results of this work

available to other workers it was decided to publish a checklist of these types and the Interim Council has made funds available for this also. The checklist is planned to appear in parts, probably three, and the first is a compendium containing the basic information of biography, bibliography and localities. The remaining parts will consist of the checklist proper and its arrangement will be explained in the introduction to part two.

The aim has been to produce a checklist which will be a useful tool for taxonomists wishing to consult Girault's types and literature on Australian Hymenoptera. It is hoped that the checklist will promote research into this biologically important section of the World insect fauna by removing the confusion surrounding Girault's work and making his great contribution to the taxonomy of parasitic Hymenoptera available to specialists.

GIRAULT'S PRIVATELY PRINTED PAPERS

Between the years 1917 and 1937 Girault issued sixty-three papers at his own expense. The opinion held by a great many entomologists that Girault was temperamentally disturbed is based upon the unconventionality of these privately published papers, their non-entomological content, plus a lack of understanding of Girault and his reasons for publishing them. Marjorie Townes, herself a Hymenopterist, writes of these papers:

. . . The contents of the papers fit the titles. He was a man of many prejudices and was continually involved in feuding. He printed these papers himself because of his battles with editors and his Washington boss, L. O. Howard . . .

The editors surely had reason for turning the papers down. Besides descriptions of new species they contain excerpts of his poetry, ranting against people and working conditions, and wandering discourses on various philosophical and scientific matters most of them critical and many irrational . . . *

This is the impression the papers give when read out of context. Another factor which contributes to their unconventionality is Girault's use of figurative language, e.g. metaphorical, allusory, ironical and so on, not to mention his poetry. During the course of my enquiries I have received a wealth of information on Girault's life from his family and have been allowed access to his personal file in the archives of the Queensland Department of Primary Industries (formerly Queensland Department of Agriculture and

* Townes, 1972: 129.

Stock). A search of the Queensland Museum archives yielded a steady flow of letters from Girault in the years 1911 to 1941 and these letters contain a wealth of detail. Sifting all of this information, gave an insight into Girault's true personality and his basic philosophies. It was then possible to place his privately published papers into context and his reason for issuing them became clear as did their controversial, non-entomological content. These privately published papers were his answer to restrictions on publication outlets and, at the same time, they allowed him an outlet for the many frustrations he suffered because of his single-minded, dedicated approach to his 'beloved work'. It is more likely that they were the result of rejection rather than the cause of their rejection by editors.

It is doubtful that he was temperamentally disturbed. Eccentric or perhaps unconventional are better descriptions. He was a direct man who spoke his mind and he was uncompromising in his attitudes. To him there was black and white without any shades of grey between: things were either right or wrong. If someone was wrong he would say so, if something was wrong he would criticise it or correct it. Perhaps an incident described by Lawrence Girault would serve to illustrate. In Queensland, the bunchy top disease of bananas was serious and the cavendish variety was very susceptible. It was illegal, and remains so today, to grow this variety in Brisbane. Part of Girault's duties with the Queensland Department of Agriculture and Stock involved fruit inspection. The event that Lawrence Girault describes took place when the family was living in a rented house at Grovenor St, Taringa, Brisbane:

. . . The house was new then, in 1928, situated on the slope of the ridge on 4 acres planted to Cavendish bananas. The highlight of this residence was that father became crosswise with Mr. Aldrich, the landlord, because he [Girault] had Ern and myself put an axe to the banana trees because of my father's 60 mile banana disease quarantine belt. I understood Mr. Aldrich's dismay as he had a beautiful plantation . . . Our neighbours, the Downs, escaped with their bananas because they were sugar and lady finger varieties . . . *

He was a colourful and very interesting person, although those who worked with him from 1915 onwards may not agree, for I am sure he would have been a difficult person with whom to work. Direct uncorrected quotations from letters and papers are used liberally in the biography. The story is better told with his own words.

ACKNOWLEDGMENTS

This checklist could not have been brought to completion without the assistance of many people. My requests to others for assistance received prompt attention and I am sure this was often at the expense of their own work programmes.

To all who assisted I express my deep appreciation.

Of key importance to the whole project was the financial support from the Interim Council for the Australian Biological Resources Study (now Australian Biological Survey). There are two elements here. Funds for travel not only for myself in Australia but also for my assistant, Miss J. Wilson, and myself to the U.S.A. allowed a thorough search for, and the listing of, all Girault's types of Australian Hymenoptera in existence. Additional funds are being made available for publication of the results of these findings.

Four chalcidologists have played leading roles in obtaining this financial support. Professor R. L. Doutt, University of California, Berkeley; Dr E. F. Riek, C.S.I.R.O., Canberra (both now retired); Dr D. P. Annecke, Plant Protection Research Institute, Pretoria; and Dr D. Rosen, Hebrew University, Jerusalem acted as independent referees for my grant application and in this capacity gave their full support. They have continued to provide advice and encouragement. In addition, Dr Annecke kindly supplied his typed version of Girault's unpublished manuscript on the Encyrtidae for copying.

The biography required the assistance of many people. Girault's surviving children, Ernest, Lawrence, Frank and Helen provided many details of their father's life and the photograph of him aged about twenty-nine years. Mr A. P. Dodd and Mr J. A. Weddell, now retired, were employees of the Queensland Department of Agriculture and Stock (now Queensland Department of Primary Industries) and in this capacity came in contact with Girault. They kindly supplied many details which assisted greatly in understanding him as a person. Mr Weddell was able to obtain, through the Director General of the Queensland Department of Primary Industries, Girault's personal file from their archives and this contained a great deal of useful information. Mr T. Passlow, Director of the Entomology Branch, Queensland Department of Primary Industries was also helpful in obtaining

* Lawrence Girault, personal communication.

information from archival material. Thanks are due to the Director General of the Queensland Department of Primary Industries for making this material available and for allowing use of the information from Girault's file as well as some direct quotations. Mr E. Donnelly, Chief Photographer and Miss R. Cane of the Queensland Department of Primary Industries Photographic Section provided photographs of the Mulgrave Mill and Meringa Experimental Station. The Secretary of the Entomological Society of Queensland kindly gave permission to quote from the Society's minutes which contain an obituary on Girault and a presidential address on the sugar industry. Dr K. R. Norris, Acting Chief, Division of Entomology and Miss R. Horn, Records Clerk, C.S.I.R.O., Canberra provided details concerning a grant offered to Girault in 1936 by the Science and Industry Endowment Fund.

The various institutions visited in search for Girault types provided laboratory space and microscopes for examination of their holdings. I wish to thank the following people in these institutions for their advice, particularly on data labels, and for their hospitality: Mr K. T. Richards, West Australian Department of Agriculture, Perth; Mr G. F. Gross, South Australian Museum, Adelaide; Mr A. Neboiss, National Museum of Victoria, Melbourne; Dr C. N. Smithers and Mr G. A. Holloway, Australian Museum, Sydney; Dr E. F. Riek and Miss J. C. Cardale, C.S.I.R.O., Canberra; Dr G. Gordh, U.S. National Museum, Washington D.C. and Dr B. D. Burks, U.S. National Museum (retired); Dr G. Viggiani, Università Degli Studi di Napoli.

Very necessary assistance in compilation of the locality list was received from Dr G. Gordh. He was able to provide a copy of *Gazeteer No.40* (Australian place names prepared by the Office of Geography, Department of Interior, Washington D.C.) which was absolutely vital in fixing the latitudes and longitudes of many localities. Mr D. Cleary of the Queensland Place Names Board with his detailed knowledge of early Queensland localities was able to pin point a number of early localities whose names have changed over the years.

Collecting and arranging the 462 references of Girault for the bibliography was a difficult task made easier by the efforts of several people. Dr Z. Boucek, Commonwealth Institute of Entomology, London, during his visit to Brisbane in 1976 provided an attentive ear and constructive remarks on all aspects of this project especially the bibliography. Since his return to London he

has checked journals not available in Australia in which Girault published papers for correct dates of issue, omitted papers and so on. Dr A. Menke of the U.S. National Museum, Miss J. C. Cardale and Dr B. R. Pitkin (British Museum, Natural History, London) have also assisted in this capacity. To all I offer my thanks for this assistance with a time consuming and laborious task. Photocopies of papers not available to me here but essential to this work were obtained through the kind efforts of Dr B. R. Pitkin, Dr A. Menke, Dr G. Gordh, Miss J. Cardale, Dr D. P. Annecke, and other sources too numerous to mention individually, for instance the Librarians of several Australian and overseas libraries.

Mr J. C. H. Gill in his capacity as Chairman of the Queensland Museum Board of Trustees read the manuscript of the biography and was able to give some valuable assistance. Many colleagues also kindly read the manuscript for this volume and their comments have been invaluable. I would like to offer my thanks to the following: Dr A. Bartholomai, Mr B. M. Campbell, Dr L. R. G. Cannon, Mr G. J. Ingram and Mr E. P. Wixted, Queensland Museum; Mr I. D. Galloway, Queensland Department of Primary Industries; Mr G. F. Monteith, University of Queensland; Dr E. N. Marks, Queensland Institute of Medical Research; Dr G. Gordh and Mr C. F. W. Muesebeck, United States Department of Agriculture.

Last but by no means least I would like to give special thanks to my assistant, Miss J. L. Wilson, for it was to her that many of the tedious tasks associated with a project of this nature have fallen. She has performed all with cheerfulness and exactness. Her efforts both overseas and at the Queensland Museum have greatly facilitated this work.

BIOGRAPHY

Alexandre Arsene Girault was American by birth and French by descent. His grand-father, Arsene Napoleon Girault de san Fargeau was on the first academic staff of the U.S. Naval Academy in Annapolis, Maryland in 1835 and the U.S. Navy has his memorial picture on display. His father, Joseph Bonaparte Girault founded in Annapolis the family church (Presbyterian) which now contains a stained-glass memorial window to his parents. Alexandre Girault was born in Annapolis on 9 January 1884. His early years were spent at the two storey brick home at 195 Duke of Gloucester Street just one block from the

family church.* A short autobiography published posthumously in 1942 says of his early life:

I was always interested in natural history objects but when a boy this did not become pronounced until I was about fifteen years old. I played around with the other boys in my home town at first but it was not long after ten before I began to show interest in something besides play and games. At the age of fifteen however, I dropped all of my former activities and commenced to pay attention almost solely to the study of insects. I have renounced not a bit of this study since . . . †

In 1903 he graduated from the Virginia Polytechnic after which he worked as a mathematics teacher then as a chemist for the Maryland Steel Company. During 1904 he began work with the U.S. Department of Agriculture in Washington carrying out investigations on economic insects. In 1909 he transferred to the University of Illinois and it was during this period that his interest in the chalcidoid parasitic wasps began.

Girault's entry into Australian entomology occurred in 1911, but the events which brought this about began in the 1890's. In this period Queensland rapidly became Australia's largest sugar producer and by 1890 had 69,000 acres under sugar cane. During the 1890's there was an obvious decline in the industry partly due to reduced fertility in those areas which had been planted with cane for some time and partly due to plant diseases and insect pests.‡ The insects causing the greatest problem were, and continue to be, cane beetles; the larval stages of Australian species of melolonthine Scarabaeidae. R. G. Mungomery, Assistant Director of the Bureau of Sugar Experiment Stations (now retired), in his Presidential Address to the Entomological Society of Queensland in 1954 summarised the situation:

. . . Towards the end of the nineteenth century frequent references in the 'Sugar Journal and Tropical Cultivator' leave one in no doubt that all was not well with the Queensland Sugar Industry. Accordingly at the instigation of leading sugar growers the Queensland Government engaged Dr Walter Maxwell, Director of the Experiment Station of the Hawaiian Sugar Planters' Association to visit Queensland to report on conditions within the local industry . . . **

Acting on this report, the Queensland Government passed the Sugar Experimental Stations Act in 1900 which led to the formation of the Queensland Bureau of Sugar Experimental Stations, jointly funded by the Government and by a levy on the growers. Dr Maxwell became its

first Director in 1900 and established stations at Mulgrave (later named Nelson and later still in 1912 renamed Gordonvale), Mackay and Bundaberg. Bundaberg was chosen as the headquarters for the Director and his scientific staff and the main laboratory was opened there in 1901.††

The insect problems besetting the industry became so serious that on 24 March 1911 the Under Secretary of the Queensland Department of Agriculture and Stock wrote to the Queensland Public Service Board:

I have the honour, by direction, to inform you that it is considered that the serious financial loss caused annually to the cane fields of Queensland by the ravages of grubs justifies the appointment of an Entomologist who will be able to devote the whole of his time to investigations into the life history and habits of this pest with the view of discovering the most economic methods of dealing with it and minimising its effects.

It is accordingly asked that you will be good enough to authorise this Department to cable to the United States Department of Agriculture, Washington, asking that institution to recommend a man for the position at a salary of £400 a year, with a three years' engagement and passage from America to Queensland and back again.

It is proposed that the salary shall be paid from the funds raised under the Sugar Experiment Stations Act.

Authorisation was given to the Queensland Department of Agriculture and Stock to contact its counterpart in Washington for an Assistant Entomologist. The Public Service Board in its reply gave a rather impressive list of qualifications that it required of the appointee:

. . . What is wanted is a man of academic culture in the modern schools and who has received a scientific training, who is proficient in general chemistry, physics and biology, and has a special knowledge of entomology, economic entomology, and incidentally plant physiology, mycology, and plant pathology, is practiced in laboratory technique bearing on these subjects and is capable of carrying out original research. A large proportion of his work will be in the field . . .

The appointee although assigned to the Queensland Bureau of Sugar Experimental Stations was to be an officer of the Department

*Lawrence Girault, pers. comm.

†Girault, 462: 441.

‡Watt, 1955:217-8.

**Mungomery, 1954: 6.

††Watt, 1955: 219.

of Agriculture and Stock acting in this matter with the Government Entomologist, Henry Tryon. Dr Leyland Ossian Howard, who held the position of Chief of the Bureau of Entomology in the U.S. Department of Agriculture between the years 1894 and 1927, began the search, but advised through the Department's Secretary that it would be difficult to find a man of the qualifications listed who would go to Australia for the sum offered. However:

. . . It is the opinion of this Department that a young man recently graduated from one of our best agriculture colleges, who has had a general scientific training and who has specialized in entomology under a good teacher, can be found who will go to you for 400 pounds a year, but before sending you such a man I wish to have a further expression of opinion from you. I do not wish you to be disappointed in the man selected or to expect too much from him with regard to special knowledge of the sciences other than economic entomology.

The Queensland Department of Agriculture and Stock accepted this recommendation. Accordingly the 'young man' was offered the position in Australia which he accepted. In their reply, the U.S. Department of Agriculture advised:

. . . Mr. A. A. Girault, who is coming to you, is a man who has had considerable experience in the field of economic entomology. He graduated from the Agricultural College of Virginia, and was employed in the Bureau of Entomology, of this Department, for several years, first in connection with investigations of the cotton boll worm in the South and later with investigations concerning the habits of and remedies for deciduous fruit insects. He was then offered a position, at a higher salary, at the University of Illinois, and has been for the last two years an assistant of Professor S. A. Forbes, of that laboratory, one of the best known of the American entomologists. With Professor Forbes he has had a variety of important experiences, and has interested himself especially in the habits and classification of certain groups of minute parasitic insects. He is an earnest, hard worker, and I feel assured will justify my recommendations.

The Zoological Record for the years 1903–1911 confirm that he was 'an earnest, hard worker'. During these years his out-put of papers increased rapidly and notable was his growing interest in the taxonomy of the Chalcidoidea. He therefore came to Australia with a firmly established interest and expertise in this field and our relatively untouched chalcidoid fauna served to stimulate him further. The years 1911–1914 in Australia show a tremendous work out-put in

taxonomy and it was the desire to continue in this field which was to move him not to renew his contract when it expired in 1914.

Girault's appointment dates from 30 August 1911, his departure date from Illinois, and he sailed from Vancouver on 6 September of the same year. His service began under the direction of the General Superintendent of the Mackay Experimental Station in October 1911. Addresses on his letters to the Director of the Queensland Museum show that he was in Mulgrave (later changed to Nelson and again in 1912 to Gordonvale) by November 1911 and that his work centred on this area until his resignation in 1914. These letters also show that his field-work included Cooktown, Bowen and Hughenden. In November 1911 he wrote to the Queensland Museum Director, Dr Hamlyn Harris, whom he had met in Brisbane on his way from America to Gordonvale asking '... the places of publication of most of the systematic papers on Australian insects and spiders . . . I have not, of course, the necessary indices to the literature here . . . ' This letter was the beginning of a steady flow of correspondence between Girault and the Queensland Museum from 1911 until his death in 1941. Most of these letters concerned deposition of his types, loans of types and specimens, requests for references in the form of whole papers or isolated descriptions, and publication of his papers. This correspondence yields many details of his life, his attitudes, aspirations, frustrations and movements as well.

Once in Australia he lost very little time in applying himself not only to the problem of sugar cane pests but also to Australia's rich chalcidoid fauna. On 5 December 1911 he wrote to Hamlyn Harris outlining his progress:

. . . I am working up the Chalcidoidea (Hymenop.) as rapidly as possible and take these two groups first [Trichogrammatidae and Mymaridae]. However, I cannot see the end yet and there may be considerable delay.

The decision to deposit his types with the Queensland Museum was made from the very beginning and by January 1912 he had 50 types ready for deposition in, and was receiving specimens on loan from, the Queensland Museum. Hamlyn Harris was '... delighted to receive the types which will of course receive regular numbers . . . ' Girault's first major contributions were published in volume one of the *Memoirs of the Queensland Museum*, coincidental with the change of format, size and name from the *Annals*

of the *Queensland Museum*. The Museum's old records and the article by George Mack in 1956 on the Queensland Museum clearly incite that Hamlyn Harris who became Director on 10 October 1910, was a man of great vision. It could be that this change in format and name in the Museum's scientific publication was part of his overall plan for the advancement of the Museum, but one could be forgiven for assuming that Girault's 124 page contribution, more than half volume one, may have had some part to play in this change. No records of this change could be found so the matter must remain speculative, but if Girault's papers did play a part, then it was probably in the role of strengthening an appeal by Hamlyn Harris to the Museum's governing body in the Public Service for the change. It was Hamlyn Harris who approached Girault asking where he intended publishing his work and Girault advised him that he had not thought of Queensland or even Australia:

... I thought it must be necessary to publish them either in the U.S. or else in England but should be glad if your Museum could undertake them as they are ready ...

Hamlyn Harris agreed to handle them:

... I am thankful that you have decided to publish with us since I am of the opinion that you have chosen the right medium of placing your results before the scientific world.

It was Girault's plan to treat the Australian Chalcidoidea in parts by family:

This year, [1912] I do not think it possible to complete more than three families — the Trichogrammatidae, the Mymaridae, and the Eulophidae (since I have only six months). The MSS. of the first and second are practically complete but I have not as yet commenced upon the third. As each family is complete in itself I think that perhaps it would be best to give to each a part number ...

These papers he intended expanding and correcting by means of supplements. As the year progressed he changed the Eulophidae to the Elasmidae as number III '... since the Eulophids are too much to be adequately handled before August ...' As well, delays were suffered during preparation of these three manuscripts:

... The MSS. of the first two families now needs to be typewritten only (most of the Trichogrammatidae has already been done but I have added ten copy pages since) and I may have to turn them over to you

with the request that you put them into the hands of a stenographer (the stenographer I had in Cairns has gone on an indefinite holiday) and return to me later ...

Hamlyn Harris was very encouraging, '... I shall only be too pleased to give you any assistance I can in order to make your work the easier'. Further delays were suffered through his absence from Nelson on field-work, lack of card points for mounting specimens and absence of reference papers. Hamlyn Harris proved to be a man of his word, supplying card for card points and journals from his personal library.

In these early papers, Girault's penchant for spicing his scientific work with his personal, strongly-held, moral and ethical philosophies appeared. In these papers however, the dedications were more broadly based and impersonal, but later, in his privately published papers, these statements were to become sharply directed against particular subjects and people. This transition is dealt with more fully later.

After much deliberation the whole dedication accompanying Girault's first paper in the *Memoirs* is included below, not only because it shows Girault's thinking, but also because its contents are important in understanding other people's reaction to his dedications:

I respectfully dedicate this little portion of work to science, common sense or true knowledge. I am convinced that human welfare is so dependent upon science that civilizations would not endure without it and that what is meant by progress would be impossible. Also I am thoroughly convinced that the great majority of mankind are too ignorant, that education is too archaic and impractical as looked at from the standpoint of intrinsic knowledge. There is too little known of the essential unity of the universe and of things included, for instance, man himself. Opinions and prejudices rule in the place of what is true. Of many things, only one can be true and it is that fact which is being continually ignored by the ordinary man who is content to hold to his own opinion regardless whether it is right or wrong, to false religions which blind and prejudice him and to political parties which rule him according to their own particular creed of the moment. The individual man must be changed through education; not so much changed as developed and this depends primarily upon himself. It is a fact that the truly educated man has an enormous advantage in life as concerns his ability to detect truth. His nervous system is more sensitive and discriminative and this is very important, since it is through sensation that all knowledge is obtained. He is apt to be unprejudiced and unopinionated, to be rather simple in his tastes, requiring not more than the necessities of life, finding pleasure in things which

are really worth while and none or but little in things non-essential and superimposed. Too often the graduate of our schools and colleges is not himself or herself naturally developed, but a mere model moulded after a certain crude fashion and most probably with all natural tendencies and abilities dwarfed or badly injured. He or she as concerns the earth upon which a living must be obtained, families reared and moral and social relations maintained, is but yet a child and has yet to learn from that greatest of schoolmasters — Experience. How often too late this Master comes is shown daily in the common experiences of life and the aged vainly try to impress it upon the young, who cannot be taught but must learn.

I have just chanced upon two sentences of worth. One occurs in William Harvey's *The Generation of Animals* and has application here. Harvey himself is an excellent example of a man who trusted in his own sensations to know things and who knew of no other authority in such matters than his own common sense and that of others. His discovery of the circulation of the blood followed as a matter of course from the rise of his own common sensations in dissecting bodies while the men of medicine of his time were accepting what others had said centuries ago, yet performing the same operations as he did. Harvey said, "The method of investigating truth commonly pursued at this time therefore is to be held erroneous and almost foolish, in which so many enquire what others have said, and omit to ask whether the things themselves be actually so or not."

A second sentence occurs in one of the works of Francis Galton and also has application here. Men are extremely variable from their very nature and Galton says "The moral and intellectual wealth of a nation largely consists in the multifarious variety of the gifts of the men who compose it, and it would be the very reverse of improvement to make all its members assimilate to a common type. However, * * * there are elements, some ancestral and others the result of degeneration, that are of little or no value, or are positively harmful." And thus, I take it, that if education is to be valuable to society — and that is the only reason for its existence — it should develop rather than mould and development is not an external process but wholly internal to the individual. The inequalities of humans are natural. The laws of society, the rules of education do not abolish them but tend rather to ignore. Stripped of all sentiment, superstition, fancies, dogmas and ancestral prejudices, it must be admitted that men are animals, subject to natural laws like all other animals; these laws in general are inevitable; therefore men must, like other animals, adapt themselves to them and to all the facts of nature. In so far as the mass of men are ignorant of the facts of nature, they may be truly said to be backward and non-adapted. They are not developed and an undeveloped society is in constant danger from itself — the individuals are neither adapted to the earth nor to each other. The mass of men are usually wise enough in a "wordly" way in that they know of human frailties, follies, greeds and

passions and are able to maintain themselves, but evolution is a fact and demands more than this from social animals with such highly developed sensibilities as those possessed by mankind.*

After receipt of the manuscripts for the first of the three papers Hamlyn Harris questioned the necessity for dedications:

... As you are doubtless aware we are very much pressed for space, and consequently I wanted to ask you whether you would mind if the dedications were omitted?...

Girault felt strongly enough about the matters raised in his dedications to incorporate them in his scientific papers, therefore it was not surprising that he was unable to agree to omission of these dedications, but hoped the papers would be published in spite of this; 'If not please let me know at once'. Hamlyn Harris was sorry that Girault could not comply, '... but having given you a promise to publish them [the papers] I would not break my word, so that they will appear in due course'. An editorial footnote was added by Hamlyn Harris to the first dedication disassociating the Museum from, '... philosophical matters of a contentious nature ...' included therein, but he balanced this statement with complimentary words about Girault's inclusion of the names of prominent scientists:

Editorial Note. — In his dedications and allocations of new names, Mr. A. A. Girault has adopted the somewhat unusual course of introducing philosophical matters of a contentious nature. On these points we must disassociate ourselves, but there are few, we imagine, who will find fault with his dedications in so far as they bring before us many illustrious names on the roll of science. — R. Hamlyn-Harris.†

Girault reconsidered and advised Hamlyn Harris that the dedication to the third paper which dealt with the Elasmidae could be deleted; and it was. If Hamlyn Harris feared that by publishing Girault's dedications he was opening the *Memoirs of the Queensland Museum* to 'philosophical matters of a contentious nature', then that fear became a reality when he received a letter from Dr A. J. Turner, a medical practitioner well known for his taxonomic work on Australian moths, advising that he wished to submit a paper with religious dedications:

* Girault, 119: 66-7.

† Girault, 119: 66.

I propose to send you an entomological paper in which the new species will be named after the Popes of Rome . . . and to dedicate each species with a brief sentence damming some particular heresy. I propose to precede the whole with a short dedication expressing in somewhat obscure and oracular terms a dogmatic view of the Universe from the standpoint of Roman Catholicism.

I am sure you will have no hesitation in receiving this contribution, for having opened the Memoirs of the Queensland Museum to "philosophical matters of a contentious nature", you cannot of course object to these being discussed from every possible point of view. To object to include it would be to make the Memoirs a partizan organ, and I am sure that this is the last thing that you or our friend Mr. Girault would wish to do.

Hamlyn Harris had placed himself in a very difficult situation by honouring his word to Girault. He adopted a conciliatory attitude to Turner, sympathising with him in his feelings towards Girault's dedications and assured him, ' . . . that if I can help it this kind of thing will not occur again'. Turner's paper did not appear, but the problem was not completely solved since the manuscripts which Girault submitted for volume two of the Memoirs were accompanied by dedications. Hamlyn Harris endeavoured to dissuade Girault:

I am somewhat exercised in my mind over the association of your dedications with your other matter. Probably very few will cavil at the sentiments which lead you to write them, but it seems to me that the point involved is one of congruity. The people who will most appreciate your dedications will be the last to look for them in your systematic writings, and conversely I imagine that the experts who refer to your descriptions may not share your cosmopolitanism and thus the sense of your comments here will be wasted. Would not the purpose you have in view be more adequately served by sending your dedications in an expanded form to journals of popular science where they would be read with appreciation by large numbers of people? Your sympathy with such a laudable principle as that of international peace is indeed worthy of expression, but I would ask you to consider the advisability of inserting this and other sentiments in a purely scientific work. There is another difficulty which I feel sure you will appreciate: the same question may come up later in a more comprehensive way with other contributors.

Girault's reply to Hamlyn Harris is significant not only for its explanation of his desire to write the dedications but also for its indication of co-operation with Hamlyn Harris's wishes:

In regard to the dedications I quite agree with you in regard to their incongruity but it has been my purpose to aid as much as possible in raising the

standard of systematic work in insects. As you are aware, this kind of work is at present more or less under a ban; at least, it is getting to be looked upon as isolated and unrelated to other work in science. Now, I consider it one of the most important lines of research in biology, embracing much more than mere descriptions, though the character of these descriptions is also of much importance. I think that the lack of care in respect to the latter is largely due to the present way of looking at taxonomy and if I can do ever so little in aiding to change this I would be delighted. I have tried to show, probably not very well, that taxonomy is related to many things and not mere dry-as-dust words and names, though necessarily requiring much drudgery.

If, however, these dedications are likely to cause you trouble and if you do not care to print them I will have to give in. My view point seems opposite to yours in regard to this. The *experts* are just the ones I am aiming at and if they would take more interest in the relations of things and less in themselves *per se*, everyone would be to the gainers. If you would agree to compromise by omitting the dedication to the Eulophidae and retaining the one to the Perilampidae I would be pleased. But I leave the matter in your hands, since you must be judge of what the Memoirs is to contain and I have no right to quarrel about it.

There is much in Girault's first paragraph with which taxonomists today would agree. The second paragraph however, shows signs of his concern for what he interpreted as the use of taxonomy for personal status and for what he saw as the pressure to justify its existence through commercial application or gain. These became an intense preoccupation from 1915 onwards and the manifestation of this preoccupation can be seen in the dedications in his privately published papers.

Hamlyn Harris was obviously relieved by Girault's reply:

. . . With reference to your kind letter regarding the dedications, I need hardly say how much I appreciate your attitude in the matter. I will compromise in any way I can and assist you as far as possible to achieve your end but I am delighted in knowing you have given me a free hand to use the dedications or not, at my discretion. It is sometimes very difficult to know how to act wisely, especially when one's keener judgment is at variance with one's natural inclinations.

The dedications did not appear with the papers. However, a lesser man than Hamlyn Harris would have used Turner's application to squash Girault's dedications without attempting persuasion.

In 1912 Girault was provided with an assistant at Gordonvale, Alan Parkhurst Dodd. Although Dodd was only sixteen he was not without

entomological experience. From an early age he had accompanied his father, Frederick Parkhurst Dodd, a renowned naturalist in North Queensland, on many expeditions collecting butterflies and beetles. Girault encouraged him in the Proctotrupoidea and Dodd's name frequently occurs as author or joint author of new genera and species of Chalcidoidea in Girault's papers in the Memoirs. Girault had a lot of faith in Dodd's ability and there are two letters in the Museum files which have statements to this effect. The first was in 1913 when Dodd submitted a paper to Hamlyn Harris for the Memoirs. Hamlyn Harris was hesitant about accepting the paper because of the relative inexperience of the author and sought assurances from Girault:

I have this morning received a letter from Allan Dodd in which he informs me that he is describing our Proctotrypoidea, and stating "I have been working on the families of the Proctotrypoidea for some months, so, I naturally, I am [sic] quite competent to identify all species". This remark alone fills me with fear because it is not until a man knows something that he realizes his own ignorance and incompetence. He has asked me to publish his small paper on the collection, and I shall be pleased to do so, provided that you will take the responsibility of his work. As soon as I hear from you to this effect I will communicate with him further.

This was not a personal attack on Dodd but is clearly seen as a desire by Hamlyn Harris to maintain a high standard for the Memoirs; the wisdom of experience questioning the confidence of youth. Girault replied that he could not take responsibility for Dodd's work but offered to read through the paper with him. At the same time he vouched for Dodd's ability:

... I also told him [Dodd] that you asked me to be responsible for his work or otherwise you would not publish it. In regard to the responsibility I assured him that he would have to stand alone and that all I could do was to assure you that he was capable of doing it, knew the group and was careful. He would have to be responsible for the very nature of the case. If he made errors he must take the consequences. He took the matter in the right way and I hope that you will see fit to publish his paper since I am sure it is all right. I want to encourage him as much as possible because he seems fit for the work. I will go carefully over the proof with him when it arrives.

Hamlyn Harris accepted the paper on these terms and it appeared in due course, in volume two.

Girault's letters to the Museum in 1912 show that, during the course of his investigations into

cane beetles, he had developed an interest in frogs as insect predators:

I forgot to mention to you a matter concerning which I am much interested, namely the literature on frogs in Australia. I am collecting as many of them as possible with a view of studying their food habits (particularly) but while about this may as well undertake a systematic view of the group. The frogs have always struck me as being extremely curious and interesting, more especially since I have seen these here. Some time when convenient to you will you kindly write and give me a summary of what your Museum has and what you know about the group and its literature. They seem to have an enormous appetite for insects and I am at a loss to know where they hide away during dry periods.

Hamlyn Harris, ever helpful, offered him all the co-operation possible, but Girault was having difficulty with more than just the literature, '... Frogs are not easily collected ...' However, he persisted and began to gather the literature. Towards the end of 1912 he was again writing to Hamlyn Harris on frogs as he continued to have trouble obtaining the necessary literature:

... As time permits, I shall undertake a study of this group, especially as concerns its food but I am having great difficulty in obtaining the necessary literature ... Should it be just as convenient, maybe I could send specimens to you for identification since I think you told me that you were prepared to do it there. I'd rather do it myself because it is excellent practice and I am greatly interested in the group.

Hamlyn Harris replied with a list of frogs and an indication of willingness to co-operate with identifications. After a letter of 14 October 1912 in which he asks for descriptions of *Hyla* species Girault does not mention frogs again. No doubt lack of access to the literature and his already high work load combined to put an end to his aspirations in this group.

His work on the Chalcidoidea, however, proceeded at a brisk pace. As well as the large papers he submitted for publication in the Memoirs, he was sending overseas shorter papers with descriptions of new genera and species. Hamlyn Harris wrote asking him for copies of his papers published in overseas journals and at the same time asked how much room he required in the next volume [2] of the Memoirs. Girault replied that copies would be provided as they became available and:

... I intend summarising these papers in the Memoirs. As regards space in the second volume I should like

to have from 150–175 pages if you can give them to me. The Eulophidae are very abundant and besides supplements to the families already published should be included . . .

The important part of the quotation above is the first sentence which expresses the relationship of his numerous short papers to his larger ones in the Memoirs. These numerous short papers and his Memoirs papers often appeared in a different chronology from that in which they were written meaning that in some cases the Memoirs papers appeared before shorter papers they were to summarise. The resultant nomenclatural nightmare is one of the greatest problems in revising Girault's work.

Volume two of the Memoirs appeared with six papers by Girault; three dealing with his first treatment of the Eulophidae, Perilampidae and Pteromalidae and three supplements on the previously covered families, viz., Trichogrammatidae, Mymaridae and Elasmidae. The whole came to 234 pages, well above his estimate and, as stated before, they appeared without the dedications. In addition to manuscripts for these papers he forwarded to Hamlyn Harris a few short notes on insects which he asked to be passed on to the Queensland Field Naturalists' Club for publication in the *Queensland Naturalist*. These were handed to Heber Longman, the President, who at that time was employed at the Queensland Museum as a scientific assistant. Five articles were forwarded but only three appeared. They were all written in a popular style with the third, entitled 'Jealousy in Pentatomids', being anthropomorphic, teleological and showing Girault's tendency to romanticise his subject. This habit became a constant feature of the titles and contents of his privately published papers.

The year 1913 was an important one for Girault. Early in the year he married Elizabeth Jeanette Pilcher, a young school teacher at the Gordonvale State School. An extract from the Queensland Registrar-General's Office shows that Miss Pilcher, born at Lower Burdekin, Queensland, was married at the age of 21 years. Alan P. Dodd was one of the witnesses to this marriage performed at the Stoke Street Methodist Church, Townsville, on 11 January 1913; two days after Girault turned 29. The first of their five children, Ernest Alexandre, was born in Gordonvale on 10 November 1913.

After their marriage the Giraults occupied a house in Gordonvale, but prior to this, Girault lived in hotels. His letters to Hamlyn Harris bear the titles of two hotels, The Imperial Hotel and

later The Queens Hotel. Amongst the guests living at the hotels with Girault were Alan Dodd and the Head Master of the local state school. Dodd, now living in Brisbane, described Girault as being a very bright person of tremendous energy. Most of the people in the small township of Gordonvale regarded him as eccentric, a reputation no doubt earned, at least in part, by his reluctance to allow his behaviour to be swayed by other peoples' opinions. Mr Dodd mentioned Girault's habit of going straight to windows for specimens upon entering a room no matter what the occasion. Dodd recalls also an incident involving the Head Master of the local school. Apparently the Head Master was rather status conscious. Pompous behaviour did not sit very well with Girault and the two men did not have a very amiable relationship. One afternoon as Dodd and the Head Master were sitting on the hotel verandah Girault appeared and began to walk rapidly up and down throwing his pipe in the air. This behaviour persisted for a time and ended when Girault abruptly turned and went inside. When questioned later about this behaviour Girault informed Dodd that the greatest insult he could pay to the Head Master was to walk up and down past him without acknowledging his presence. In a small country town, news of such unconventional behaviour would spread rapidly with the inevitable embellishments traditional of stories carried by word of mouth.

The other important decision taken by Girault in 1913 was not to renew his contract when it expired in 1914. Perhaps the most important reason was his change of interest from economic to taxonomic entomology. His letter of 9 August 1913 to the Queensland Bureau of Sugar Experimental Stations, apart from giving twelve months notice of his intentions to allow for a replacement to be found, gives Girault's ideas on the type of person to be employed and the direction in which the work should proceed:

I think it is incumbent upon me to inform you that it is my intention to return home as soon as my contract time is out, since I promised my people that I would do so. I have thought the matter over and it appears only fair to you to state this intention, so that you would have ample time to make preparations for it. There remains little over a year, perhaps not quite a year. I assure you that my going has no connection whatever with any feelings of dissatisfaction, but rather that I have an idea you could obtain a man better fitted for the position of economic entomologist in a new country such as this is. Although I have been an economic entomologist, I find myself drifting away from the work more toward

that of pure science, and I am getting such an appetite for that sort of work that it is with difficulty that I curb it at all. So I return home with the intention of obtaining that sort of work or at least to be situated so that I can indulge in it.

In the meanwhile I will do everything possible to aid you and intend doing my best toward advancing the grub investigation. In regard to this work I believe you will have to enlarge the force; there should be a man here constantly experimenting with insecticides, there should be a man doing field experiments, and one or two devoting themselves to purely systematic studies of several groups of insects. We should moreover have a simple chemical laboratory. The people of Queensland should get a good start with scientific work in advance of the agricultural development, and while they should demand that the work should be directed to practical ends and benefits, nevertheless they should remember that the way of advance is difficult, tortuous and slow, and that men who will devote themselves patiently, thoroughly and honestly to the study of insects should be encouraged, no matter whether the insects are immediately concerned with man's economic condition. However there are men who devote themselves to obtaining immediate practical results, and this is the sort of man you desire. In this connection, then, I make bold to say, that you should definitely define the situation to the newcomer, so only that sort of man will come. You should have before long plenty of material here in Queensland of which to make entomologists.

Attempts were made by the Queensland Bureau of Sugar Experimental Stations to dissuade him from taking this action. However, Girault remained firm and he thought he should step aside for a man whose interests were more in the applied line. His resignation when submitted in 1914 was accepted with regret.

Girault informed Hamlyn Harris of his intention to return to America in a letter of 6 December 1913 and, at the same time, discussed the completion of his series of papers in the Memoirs:

... In as much as I am leaving this country about the first of September of next year I must complete the series of papers on the Chalcidoidea at least by the following July, when they must be submitted to you for vol. III of the Memoirs. They must, of course, be in final form, since I cannot hope to see the proofs. I am anxious, therefore, to make the whole as full as possible and as accurate, so that it will form a foundation for future progress in the group. Consequently, if you will let me know about how much space you can allow me in next year's Memoirs I will be the better able to judge whether to hold MSS. now on hand or whether to have it separately published, to be condensed in the Memoirs. . .

Hamlyn Harris regretted that Girault was returning to America and:

... As regards to the publication of your papers I will do all I can to assist you. As I understand that the next ones are to be final, prior to your departure I will as far as I can say at present, not limit you to space, although I would be glad if you would not exceed 250 pages of print.

The resulting manuscripts were placed in volume three and overflowed to consume all of volume four; both volumes appearing in 1915. Volume three should have appeared in 1914 and the delay was probably a result of the lateness of their final preparation by Girault. These papers, in the two volumes, make up a total of 570 pages of print, over double the 250 allowed for by Hamlyn Harris. This may have been the reason for his asking Girault to contribute financially towards the publication costs of volume four. Unfortunately the crucial letter by Hamlyn Harris dated 22 October 1914 is missing and the exact details of why he wished Girault to contribute the amount are missing with it. Girault replied immediately by telegram, 'Yes, letter'. The letter that followed made no mention of an amount, just that money was forwarded; it was only part of the payment; and it was all the cash he could spare. The only amounts mentioned anywhere concerning this transaction showed that Girault still owed £50 when he left for America and that the total cost for volume four was £150. An estimate of the size of Girault's contribution towards volume four can be confidently put at about half. Remembering that Girault's salary was £400 per annum then even half of the cost would have represented a substantial amount of money.

During 1914, his last year in Australia, Girault was approached by the Queensland Department of Agriculture and Stock about the deposition of his types in the Queensland Museum. He immediately became worried that the Department wished to claim the types and he wrote to Hamlyn Harris:

... I think I shall enter protest to the Dep. Agric. in regard to their claim on the types. If I am not mistaken I can claim them as my own private property to dispose of as I see fit. At any rate this is the usual way with systematists. Of course I cannot claim types founded on specimens loaned to me and I have no desire to own any of them. . .

Hamlyn Harris in his reply expressed some concern on the matter:

I have your letter on 19th February before me, and need hardly say that I am with you in the matter of the custodianship of the types. Of course I have no knowledge of what has transpired to make the Department of Agriculture claim these, but considering that they have been promised to the Queensland Museum, in consideration of which your papers have been published by us in our *Memoirs* it seems to me that we have first legal claim, and if I understood the exact facts of the case, and thought it advisable I would interview the Under Secretary with a view to getting the matter settled.

Either Girault had misunderstood the Department's request or he was able to persuade the Department that his types should go to the Museum. He informed Hamlyn Harris on 23 June 1914:

... In regard to the types, of which there are 1500+, this Department asked me to send them to it with the request that they be given to the Queensland Museum. I have acceded. . .

All of the material he forwarded to the Department was forwarded in due course to the Museum except for one parcel where he failed to direct it to the Museum. After proof was provided that it contained types for the Museum they were duly handed over by Henry Tryon, the Government Entomologist. One feature of the letters on this matter was the strong desire Girault showed that his types be adequately stored and he stated quite clearly his belief that museums were the correct place for deposition of types.

The following formal resignation, addressed to the Queensland Department of Agriculture and Stock, was written on 16 June 1914:

I have the honour to submit herewith my formal resignation as Entomologist to the Bureau of Sugar Experiment Stations to take effect as from the thirtieth day of August, 1914.

Girault had already written to Hamlyn Harris on 1 June 1914 giving 30 August as his intended date of resignation and at the same time outlined his future plans:

After my contract time expires (August 30) I should like very much to spend about half a year more in Australia and if so will be pleased to enter into an arrangement with you so that most of my time could be placed at your disposal. It is my intention to go west to Pentland to my wife's home and while there I had intended to make general collections of most vertebrates, take a good rest and obtain an all-round change. My principal object in staying over is strictly personal but another reason is that I should

like very much to return to my present work on Scarabaeidae in about next December for several weeks without in the meanwhile having any connection with it. My staying over, however, hinges upon what reply I receive from Washington where I had arranged to be by the end of the present year. If this reply is favourable, I shall carry through the programme outlined and return by the way of Europe where I hope to make a stay of a month or two.

I do not, of course, know what funds you have at your disposal and it is not my purpose to make profit out of this collecting but I shall have to ask of you a small monthly salary of five or six pounds so as to make up the loss to the amount which I had put aside for the European trip. If you can take me on under these terms I would be delighted.

Of course Hamlyn Harris was bound by Public Service rules in the matter of employment and the casual arrangement proposed by Girault would have been difficult to arrange:

Your letter of June 1st is before me and although I thoroughly appreciate your wishes and aspirations I am a little in the dark as to how far the Government would fall in with your suggestions and would rather suggest that you make definite application, stating exactly your ideas, to the Under Secretary, Chief Secretary's Department, B'bane, when the matter will doubtless come before me officially and I shall then have an opportunity of expressing my opinion in the matter. I am at all times ready and willing to give every assistance to scientists in whatever field their labours may lie.

Girault had not imagined that a formal application would be necessary. However, he decided to forward any material collected to the Museum. There are no records of any major collections coming from Girault and the matter appears to have gone no further. Other plans he outlined were changed, probably due to the onset of World War I in August of 1914. His planned return to America via Europe would have been out of the question and the money he had put aside for this voyage was probably used as part payment for volume four of the *Memoirs*. He does not appear to have returned to his work on the Scarabaeidae [the family to which cane beetles belong]. Letters show that Girault and his family were in Townsville en route to Pentland on 31 August 1914. October found them in New South Wales staying at the Shamrock Hotel, Muswellbrook en route to Sydney. They remained here for about a week and in November Girault was writing from Brooklyn on the Hawkesbury River just north of Sydney. When they reached Sydney they were to board the 'S.S. Sonoma' due to depart for San Francisco on 21 November 1914.

During this period, including the sea voyage, Girault was correcting the proofs for his papers in volume four of the Memoirs. They followed him by mail down to Sydney but the last were ready too late for the mail to reach him before departure and had to be sent via another passenger. The Government Printer who was preparing the proofs advised Hamlyn Harris by Memo of the arrangements:

I see by today's Mail Notice that Parcel Post for Sonoma closes next Wed. 1.15 p.m. and letters Friday 7 a.m. I will get all I can ready for Tuesday evening.

Mr Campbell, Commissioner to Panama Expos. leaves Friday morning and will take anything that I have ready, if that is the boat Mr Girault goes by.

It was the same ship and Girault received the proofs from Mr Campbell. He acknowledged their receipt after departure of the 'S.S. Sonoma':

I received the proofs from Mr Campbell and am returning that of part VII from Honolulu. The others will follow from San Francisco . . .

The weather at the time was rough and Girault does not appear to have been a good sailor for the ink is smudged and his p.s. explains, 'Horrible pains and the ship is rolling'. The last of the proofs were returned from San Francisco on 18 December 1914.

Girault and his family arrived in San Francisco in early December 1914 and were in Washington D.C. by early January 1915. Mention has already been made of the £50 debt he still owed the Queensland Government Printer for volume four of the Memoirs. The period 1915 to 1916 was one of economic hardship for him and the debt had to be removed by a series of small instalments. His letter accompanying the second payment explains:

Herewith another small installment on the amount due the Government Printer. I have been in need of ready cash for some months and am still in need but this amount due you will be sent in successive rapid installments. I am anxious to get it off my hands and am just beginning to be able to attend to it.

Hamlyn Harris, always understanding, did not press Girault to finalise the amount:

. . . I quite believe you are anxious to get it off your hands. The Government Printer is, however, a very long-suffering person and is quite willing to wait until such time as you are able to complete the amount.

The last instalment was made on 19 July 1916 and the accompanying letter explains the reason for his economic problems:

Herewith the remainder of the amount due to Mr Cumming [Queensland Government Printer] to whom please express my thanks for his great patience and kindness. I am now entirely out of debt and did not relish the experience. This debt was due to my long wait over here for my appointment to go through. Thus, my cash soon gave out and as I did not care to borrow, ran head over heels for a while on the down path . . .

Before continuing with this very important period in Girault's life mention should be made of a letter received by Hamlyn Harris from Mr Walter W. Froggatt, Government Entomologist, Department of Agriculture, N.S.W. and dated 8 March 1915:

I have been going through reprints of Girault and Dodd and find that all the types are in the Queensland and Adelaide Museums. From this I presume that your Museum and Adelaide buy the types, and so there is a definite reason for these gentlemen describing hundreds of specimens of tiny little creatures and even creating new Genera from single specimens of one sex caught sweeping.

Prof Wheeler told me that you have nearly 2000 of these types and that he did not consider that they would be of any value to workers who have to consult them. As regards Dodd it seems to me, that the border line between the new species is so indefinite that he is not quite certain of them himself, take his remarks on the Genus *Scelio* in R.S. Queensland [*Royal Society of Queensland Proceedings*] for example. I should not be surprised if one was to take a batch of eggs of *Locusta danica* that had been infested by these parasites that he would find many variations of type which under these conditions of description could be easily called new species. I don't know how many journals and magazines Girault and Dodd have published descriptions of Australian Micro-hymenoptera in, but disjointed descriptions of Queensland Micro-hymenoptera are appearing in at least a dozen different Proceedings from Germany to Canada. Don't you think that we might want something more than a brief description of a single specimen of one sex to make a species from either a Museum or economic point of view?

Hamlyn Harris in his reply was able to inform Froggatt that the Queensland Museum was not involved in purchasing types from Girault. Since the types in the South Australian Museum were mostly from that museum's own collection, money transactions would not have been involved with that institution either. Out of courtesy to Girault, Hamlyn Harris forwarded a copy of Froggatt's

letter to him. Girault chose not to reply to Froggatt personally but he did reply to Hamlyn Harris and this letter has a number of interesting points. It contains his second defence of Dodd's ability, shows his taxonomic thinking and contains a statement against economic entomology. The letter reads:

I have your letter and enclosure of a month ago and am not at all worried by Mr Froggatt's letter. I wrote him a long letter about two years ago asking him if he would not stop indiscriminately describing insects in all orders or rather giving him my views on that sort of thing at the same time telling him that these views should not have anything to do with personal relations. In other words, it is not to him personally I objected but to work of that sort. I think however he was rather put out. He has never sent me his descriptions and they are, unfortunately, all wrong anyway.

Single specimens are proper for types. If the species varies and has been described again, why the two can easily enough be brought together. The fundamental thing is to describe them correctly! I am astonished at the great amount of careless work done in this group of minute forms. I have the types here of Ashmead's and Howard's Australian species and genera — simply astonishing how they failed to describe them. The types will disappear in time and if the descriptions are incorrect, why everything is gone. Young Dodd's work is all right. Why this boy has got more sense in him than twenty F's. But, here I am getting personal! Why nature would be queer indeed, if one specimen taken at chance does not usually represent the species. Freaks are not so common as all that. A female specimen is best for the type in this group.

If I had been at all well at the time I would have called in at Sydney to see Mr Froggatt.

If the views of Mr Froggatt were followed, one would have to sit down and wait very patiently for years and years and never even then get together series of these forms. Australia is being settled; these forms will rapidly disappear. It is a pity that entomologists, so called, must be continually wasting their time and energy on farmers, like over here [U.S.A.] for example.

I hope the other parts of the Australian Hymenop. Chalcidoidea have been published by this time because I should like the indexing to be got over. I have perhaps a hundred new species to add and many redescrptions of Ashmead's & Howard's Australian species a few of which are to take preference over my species. But of course, from their descriptions one would never know this. Now, speaking of Ashmead, is of course nonpersonal.

I think it is not worth while writing to Mr. Froggatt in regard to his letter. Personal attacks are wearying and unprofitable to either side. I expect a few before I am done but it is time that Science rid itself of this specious weapon and it be understood that because

a man's name is mentioned, he isn't necessarily attacked. The unfortunate part of it is that one has to mention names.

Most taxonomists today would agree in principle with Froggatt that genera should not be erected from single specimens. They would also agree with Girault in his desire to collect and describe the fauna before parts are lost through settlement. Once the fauna is known then revisionary work can settle synonymies. In spite of the monumental work of Girault on the Australian Chalcidoidea the group is still far from completely known in this continent.

Girault seemed destined to evoke strong reactions from people and the reaction to his dedications in volume one of the *Memoirs of the Queensland Museum* has already been discussed. In the last paragraph of this letter above there are signs that he was receiving strong reactions again, but this time it was in response to criticisms of other people's work. One must remember that this was an era when people were ultra polite in their dealings with one another especially on a professional basis and Girault looked upon this as a 'specious weapon'.

He appears to have been a very direct person and it is little wonder that his criticisms caused offense. However, as he explains, these were not intended to be personal and perhaps his only fault at this stage was that he was not diplomatic. This was the last the world was to see of a moderate Girault. The year was 1915, two years before his privately published papers containing vitriolic criticisms of people and conditions began to appear. He entered U.S.A. in 1914 the affable person seen in his letters to Hamlyn Harris and one who was conscious of his obligations to his employer, as in his letter to the Queensland Bureau of Sugar Experimental Stations giving advance warning of his intention to return to the U.S.A. He returned to Australia in 1917 a very bitter person with strong feelings against economic entomology, economic entomologists, commerce and related subjects. These became obsessions which deepened in feeling throughout the rest of his life. Perhaps the affability he displayed prior to this period was due to the accommodating treatment given him by Hamlyn Harris. In the U.S.A. he was to find conditions a little different.

Without archival material for this period of his life, the following story, pieced together mostly from his privately published papers and letters to the Queensland Museum, is speculative but not without credence. It is not intended to cover

completely his privately published papers since this will be done for an introduction to go with re-publication of his privately published papers in co-operation with Dr Gordon Gordh and Dr Arnold Menke of the U.S. National Museum.

To fully appreciate the events of the three years he spent in the U.S.A. one must bear in mind that Girault was a very intense person with strongly held philosophies. His troubles in America were caused by his uncompromising defense of these philosophies, personal and institutional financial shortage and his intense dedication to the taxonomy of the Chalcidoidea. These were accompanied by intense irritation with anyone or anything which interrupted this work. Had he been more flexible in his attitudes and less intense in his feelings then a lot of trouble in the U.S.A. may have been avoided.

The story begins back in 1912 with the publication of his first papers in the *Memoirs of the Queensland Museum*.^{*} His dedications of this period, both published and unpublished, deal with three things:

- (1) Truth; the knowledge gained by applying the mind free from conditioning. ' . . . Opinions and prejudices rule in place of what is true . . . '* As part of his discussion Girault quotes William Harvey, the English physician who discovered the circulation of blood; ' . . . The method of investigating truth commonly pursued at this time therefore is held to be erroneous and almost foolish, in which so many enquire what others have said, and omit to ask whether the things themselves be actually so or not . . . ' Many years later in one of his privately published papers he says, ' . . . The soul of Science, as of Poetry, is freedom . . . '†
- (2) Self interest on the part of scientists, i.e., their work took second place to their ambition. Girault's definition of the 'truly educated man' is pertinent here. ' . . . He is apt to be unprejudiced and unopinionated, to be rather simple in his tastes, requiring not more than the necessities of life, finding pleasure in things which are really worth while and none or but little in things non-essential and superimposed . . . '‡ Unintentionally he had given a very good description of himself and his attitude to his work. He considered ' . . . that the truly educated man has an enormous advantage in life as concerns his ability to detect truth . . . '§

- (3) The low status of taxonomy and pure science generally. Science instead was directed towards practical ends, i.e., applied science was held in higher esteem than pure science. The closing remark in his letter dated 9 August 1913 to the Queensland Bureau of Sugar Experimental Stations advising of his intention to resign in 1914 bears on this matter:

. . . The people of Queensland should get a good start with scientific work in advance of agricultural development, and while they should demand that the work be directed to practical ends and benefits, nevertheless they should remember that the way of advance is difficult, tortuous, and slow, and that men who will devote themselves patiently, thoroughly and honestly to the study of insects should be encouraged, no matter whether the insects are immediately concerned with man's economic condition . . .

Approximately twelve months after his return to the U.S.A. his concern for the status of pure science prompted him to write a paper, 'The urgent need of the economic entomologist' which was published in *Entomological News* towards the end of 1915. His meaning is quite clear and the paper needs no introduction:

My experience as an economic entomologist has taught me that when a man of science is in a position where he is expected to be practical in the ordinary meaning of that word, either he or the public has to surrender. The so-called practical man is too often just the opposite as I am reminded by a conversation which I once had with a farmer. This man was thought to be very practical; he had a large farm which was *profitable*. He was a man of affairs and family. As a practical man, he became interested in a certain insect which was causing him considerable loss from year to year . . . He gave me various accounts of his experiments but it needed no acumen to see that they had long since been lost to him and that he was totally confused. This eminently practical man could not perceive his own impracticality in not making use of the art of writing.

We see then that the word *practical* has a somewhat false meaning in popular use. To expect a scientist to be thus practical is like expecting him to renounce himself together with all of those aids which the really practical sense of man has laid up in store for his *proper* use. I have in mind theories, books and mechanical appliances. All are greatly abused and most are worthless. A small minority are invaluable and true. Practicality in life is shown by the use of those aids made by the individual, his selection of the worthy and rejection of the false.

* Girault, 119: 66-7; 120: 117-8.

† Girault, 406: 1.

‡ Girault, 119: 66-7.

It is so with the economic entomologist. Primarily he should know biology; . . . In a word, he should be truly educated, which means self-developed, learning from experience, accepting all of the aids within his reach toward that end but with discrimination.

Economic entomology should be considered as being within the broad field of applied biology, including medicine and agriculture in their widest sense. But, fundamentally, it is pure biology, and therefore pure science and the efforts of the lay-man for profit to make of the economic entomologist a creature belonging to him and a practical man in the ordinary sense cannot result in anything else than loss to both, for the economic entomologist must be fundamentally a biologist studying insects and a biologist cannot be prostituted for gain without hurt to himself. As a necessity, he cannot safely for gain or for any other object whatsoever, prostitute his own mentality in order to satisfy *current* or *local views* regarding what is practical. Thus we come to one of the crying needs of the economic entomologist — that he should become no less than theoretical.

In applied entomology it is almost trite to state that a true knowledge of the habits, instincts and home relations of insects is the basis for all operations against them. Yet, how few insects have been carefully and thoroughly studied. The absence of knowledge concerning some particular habit often results in failure to cope with the insect, while the absence of theories concerning the home relations of insects often leads to faulty recommendations which may cause loss in one way or another. If economic entomology was on a broad biological basis, that is, theoretical, there would be less uncertainty concerning the application of parasitology and more certainty regarding the importance of local conditions in causing variation in the life histories of insects. Nothing that is true is impractical; its practicality may not be seen at the time, but in the end all knowledge becomes of use, directly or indirectly. Of all knowledge, the theoretical is the most practical and I have no doubt that as soon as the economic entomologist becomes theoretical, immediate practical results will be forthcoming and new fields of prophylaxis and treatment opened.*

Most of his non-entomological writings in his privately published papers are merely extensions of these three ideas mostly written in an allusory style.

Girault's personal economic hardship, increased by his financial contribution towards the publication of volume four of the *Memoirs*, has already been established. The period was also one of World economic depression as a result of World War I which meant that institutions were financially restricted both in research and in publication. Under these circumstances workers at the U.S. Department of Agriculture were apparently restricted to one paper per month. Girault was a prolific author and he found this restriction in outlet extremely irritating. His

privately published papers were partly to alleviate this problem and partly to allow him redress against the system and people he thought to be standing in the way of his work:

. . . Making arbitrary restrictions as refusing to print more than one article a month for any one author, meaning that the prolific author is loaded with chains which he must drag long . . . †

He was employed with the Bureau of Entomology, U.S. Department of Agriculture whose workers were and still are housed in the U.S. National Museum. In times of economic stringency it would be expected that entomologists of an Agriculture Department should be restricted to applied topics to justify budgets. Taxonomic papers would have to have an applied flavour. Girault would not accept this and he objected to editorial alterations of this nature in his papers:

. . . I once wrote in the original description of *Podagrion beneficium* that this insect was so named because I desired to say it was not beneficial to man as cant will have it but to itself. But the sentence was deleted, crushed like a poisonous reptile . . . ‡

The editor of the *Journal Straits Branch Royal Asiatic Society* changed Girault's title, 'New Chalcid-flies from Malaya' to 'New Chalcid Parasites from Malaya' and was criticised for it:

. . . but the editor, by this change, conveying a secondary meaning, implying that the flies in question were noteworthy to men primarily because they had a value (which they have not) other than their primary and intrinsic one — namely, as objects of delight and admiration . . . He therefore descended to a deceit; in short, bowed to Mammon, but on Truth turned his back . . . ‡

This attitude carried on in the titles of some of his privately published papers; 'New Queensland Insecta Captured without Any reference to use', 'New Pests from Australia' (which appeared as a series of ten papers between 1926 and 1932 and he explained in the first, 'These beautiful species are quite harmless, yet they must be called pests in order to be respectable and in order to be paid . . . **') 'Some Beauties Inhabitant not of Commercial Boudoirs but of Nature's Bosom, Notably New Insects' and so on. His dislike of economic entomology grew into a dislike of commerce, science, America and machines which continued throughout his life:

* Girault, 250: 351–3.

† Girault, 330: 14, 'Tyranny'.

‡ Girault, 358: 1.

** Girault, 397: 1.

Science is now in bondage to "Democracy" and Democracy's master, Trade . . . The chiefs of Science, therefore, are but servile vassals, therefore tyrants. They punish us for telling or loving truths, . . . Let us have some insubordination, and mutiny, if need be. Must we be slaves to trifles, bread and motion?*

"They desire us to study what we hate and hate what we love and that is to study."

Chalcid-flies are to be loved when they are parasites of a pest, not otherwise. The Wealth of Nations will guide us, our sofas and so forth. Trade will teach us what is loveable and lovely . . .

"Love them," says my heart; "hate them," says Mr. Trade, seeing they are not to be made into bacon; "Love them," says he later, fancying he can now use them for business. "Hate them," says my heart, not liking them now and fearing to be gobbled to boot . . .†

Commerce has debased everything, e.g., Entomology . . .‡

Commerce is the most subtle, monstrous satanic dragon-devil Humanity has ever had to conquer . . .**

He found taxonomy being subjugated to economic entomology and his concern for the lowly status of taxonomy became a dislike of economic entomology which deepened as his life progressed. He regarded economic entomology as a prostitution of entomological science and economic entomologists were accused of prostituting their training. The latter is also an extension of his concern that scientists were showing self-interest rather than interest in their subject. The first verse of his song entitled 'A song after the manner of "Auld Lang Syne"', on some prominent "Economic Entomologists" (who forsook insects for trade) is sufficient to give the idea:

Should A.L. Quaintance be forgot
and other childish men?
Who their first love let go to pot
That they might fatten . . .††

Although it is directed against all economic entomologists, Dr Altus Lucius Quaintance is specifically mentioned for reasons uncertain. Quaintance was the entomologist in charge of the Deciduous Fruit Investigations of the Bureau of Insects, U.S. Department of Agriculture from 1903 to 1940.†† Girault knew him personally and would have worked under his direction in the years 1904 to 1909. His reason for mentioning Quaintance in particular may have been because of his status as an economic entomologist but it is just as likely that his name fitted the tune 'Auld Lang Syne' so well.

Girault's direct and uncompromising nature was the cause of a lot of friction between himself and the rest of the staff at the U.S. National Museum; which brings us to the second source of his problems. He found his working conditions intolerable from the beginning and regarded his co-workers as flippant in pursuance of their duties. The problems, as he saw them, are described in his privately published papers issued in 1917:

. . . and was assigned to the U.S. National Museum, in a large supplies-room dominated by an innocent youth addicted to the Times and social gaiety. Work was beneath him. My space here was 4 by 4; constant interruption, noise, boisterousness, whistling and joking prophiled. Despite, I worked and was abused for it, shunned, despised . . .***

Thus friction was present from the beginning between himself and his co-workers and his outspoken criticisms merely added fuel to the fire. By the time his privately published papers began to appear in 1917, his last year in America, the atmosphere was very charged. His non-entomological outbursts in these papers would only have increased the tension between himself and the rest of the staff. One of his criticisms of the U.S. National Museum reads:

This work was done in Bedlam, that is, the Insect Section, U.S. National Museum at Washington, a place unfit for scholarship. Froude says institutions are for men. This one, in another sense, seemed to be for children; certainly not for capable men. Shameless, noisy, and frivolous, its tendency was to ruin, not to up lift. Seriousness is out of place in a circus or amongst comedians. No real science or pure love of truth can come from that place.†††

His co-workers came in for strong criticism in the form of a vitriolic poem entitled, 'Little Men', which contained:

Lines composed last March [1917], in a heat, after leaving my *study* in the insect division, U.S. National Museum, where I had endured the usual daily abuse for presuming to work in this place of amusement and consequent noise and interruption . . .†††

* Girault, 379: 1.

† Girault, 386: 1.

‡ Girault, 400: 1.

** Girault, 440: 5.

†† Girault, 349: 3.

‡‡ Mallis, 1971: 487-9.

*** Girault, 332: 6; 'Science or Jealousy?'

††† Girault, 342: 1.

††† Girault, 332: 5.

The poem begins:

How the little men puke and whine
In their wasteful efforts to shine;
How Envy them corrodes the heart
And Jealousy, too, plays its part
In their hate of all that's truly great . . .*

In one of his privately published papers issued just after his return to Australia in late 1917 he gives a summary of how he saw the previous three years in the U.S.A.:

The meat of this work was cut up and dressed in very difficult circumstances. Where should have been quiet and calm, was confusion; where good feeling, malice; encouragement, opposition; freedom, tyranny; the hope of good, the fear of evil; and the toleration of a plain right, the intolerable toleration of wrong, the intolerance of mean, petty minds and of envy.†

The relationship between Girault and his superior fared little better than that between Girault and the rest of the staff. It, too, appeared to have deteriorated early:

Three years ago I returned to America with the hearty sanction of L. O. Howard who after greeting me said without necessity or occasion, "He's a little man" . . .‡

The nature of the disagreement between the two men is not known at this stage. It was in contrast with statements indicating their relationship in the years up to 1911 when Girault departed for Australia from the University of Illinois. Howard was the person who selected and highly recommended Girault to the Queensland Department of Agriculture and Stock. In addition the acknowledgment section of one of Girault's papers in 1908 reads:

I am particularly indebted to Dr L. O. Howard, Chief of the Bureau of Entomology, U.S. Department of Agriculture, for specimens upon which the descriptions in this paper are based, and for the opportunity of studying a large series of European Mymaridae, besides many other kindnesses.**

In extracts from these privately published papers two criticisms are levelled at Howard; prostitution of his training for gain, and tyranny:

Thou! who didst thy pure love for
insects trade
For a petty tyrant's seat? Practice now
doest thou praise . . .††

No true systematist creates faulty types and leaves them, though under his nose, in the same state for years, while he goes about directing the affairs of business entomology. This is done repeatedly in America, and is mere shiftlessness, not science. Indeed, it shows utter carelessness for truth, astonishing in professed men of science. L. O. Howard is a shining example. He has been ruined by wealth like Frances Burney was ruined by royalty, and is now defending the grossest materialism, a mortal disease.††

Two passages give some understanding of the nature of the word 'tyrant' as applied to Howard. The first is a poem, 'The Entomologist', subtitled 'not a true one this time but he who is now called The Entomologist in the nation's Department of Agriculture.':

O Ossian, (not thou, O celtic bard of old —
To thee such lines ne'er would I dare address)
Didst think that I, like those poor others,
could be sold?
My soul a slave to thee? 'Twas this, no less!
When thou from Austral's shores didst call me
hither, free
To be, a scholar ripe, fitter than all;
Was't my science to thwart, I thus ev'r silent be,
While base cowards cringed, to lies a thrall?
Who taught thee, fool, Truth could bartered
be for gain?
Thou art lost, thy own high soul is lost, died
The day that for poor paltry things thy heart was
slain —
'Twas then thou first turned and lied.
Command, lead? Art thou the one Youth's
banner high to raise . . .***

Once again the necessity for economic or applied bias appears. In the above poem Girault accuses Howard of thwarting his purely taxonomic goals; of trying to direct him to economic research.

The other tyranny:

An American chief directing this work for 3 years, compressed 14 days into 2, exclaiming, "speedily, speedily!" Moreover, enslaved it. Fancy thought made trip-hammer and boxed-up! As for speed, for every aye a whole day of no's was answered. . .†††

* Girault, 332: 4; 'Little Men'.

† Girault, 345: 1.

‡ Girault, 332: 6; 'Science or Jealousy'.

** Girault, 51: 195.

†† Girault, 332: 2.

†† Girault, 342: 4.

*** Girault, 332: 1; 'The Entomologist'.

††† Girault, 417: 1.

The American chief here was undoubtedly Howard and Girault's objection to 'speedily, speedily!' is explained in an earlier dedication:

Science for use induces or forces attempts at impossibilities, hastiness, and falsehood. We serve convenience or a tyrant, not fact or truth. It is common in commerce-ruled countries, as in tragic America, where life is enslaved to business and sacrificed to this Baal. The soul of Science, as of Poetry, is freedom — it is voluntary, or offered, or devotional work and is slow.*

The relationship between Girault and the rest of the staff became so intolerable that Howard was forced to take action:

. . . Then I legitimately criticized these conditions, some work of these men. H. [Howard] mistakingly used this for his excuse; (treason); he imposed silly rules, dictated criticism at the form and not the sense, got hopeless about confuting, got a democratic majority, got order of transferral through another and 'pon my refusing to substitute a mere "job" for my beloved work, he dismissed me.

Abuse from them proved me; 'twas their praise. The dismissal was cowardly, showed impotence. They wanted compliance, not science. I sorrow for them.†

Thus ended three unhappy years for Girault; years that embittered him. As early as 1916 he had thoughts of returning to Australia. His letter to Hamlyn Harris dated 19 July 1916 explains his feelings:

. . . I am not overfond of my present situation and may make a move before very long, Australiawards. It is hard to be loyal to a country which stands for zero or what-not. I have been puzzled ever since my return as to what the matter is but things are terribly loose and nondescript due largely to lack of government.

In 1971 after his dismissal he turned his back on the U.S.A, his home-land, and returned to Australia. When writing to Hamlyn Harris on 20 September 1916 he referred to 'old Australia' in nostalgic tones, but of the U.S.A. he had naught but criticism, mostly because of what he felt to be its debasement by commerce:

. . . Had not all science gone to the last gold rush and had not America lost all restraint and self-control, gone hysterical, indeed, over her anxiety to possess; gotten ignorant and vulgar, and with pretence and sham, causing all the evils of our nature to ferment? Their virtue seems for effect and breeds distrust. They would be gentlemen, forgetting that nothing is more essential to this state than sincerity and simplicity.

These love not parade . . .

Quality is the soul of science; but America runs all to numbers and fractions, a nation of jackasses and smart Alecs among whom is there any who knows the next event? . . .

O thou beloved of my fervent youth, I hate not thee, nay, but only the vermin that infects thee . . .‡

His other criticism of the U.S.A. was that it lacked what he thought to be liberty of speech:

In America, certainly, since that country's founded on a lie; there it is considered unmanly to tell the truth, unjust and mean to criticise even a form of treachery, whilst clean, sober liberty of speech, is unknown. . . .‡

This paper (428) contains his notorious poem to Ashmead:

False Captain! Ah! dark Error's pioneer,
Enthusiastic dunce and shamming seer,
Aching for a day's applause;
Low scholar, ever wishing us to laud
Ambition's wind-blown froth and sandy fraud,
Thus defying Heaven's laws.

Arise! Come, get thee from thy shelt'ring grave
Where, strongly walled, e'en thou couldst dare be brave
With Impunity's gaunt grace;
Ah, come, past coward, lily-livered liar,
Fair-tongued sweet-mouthing unctious friar
Let's see what's writ across thy face!**

The poem contains strong words, but if one reads further Girault explains that Ashmead's work was the product of the American system that he disliked so much:

These lines are just. They are not spiteful nor meant as unkindness. Only had this man, a sort of Bunyan Professor, been criticised or otherwise corrected and ordered wisely, certainly made more free, there would not have been the present confusion in the study of chalcid-flies. He was overborne and made to do too many chores which he should have refused . . .**

Thus, this Ashmead, perhaps a false hollow, certainly a driven creature passed among them for some little great man. He threw half the chalcid world into convulsions. In that wild country, none dared stay his hand . . .

* Girault, 406: 1.

† Girault, 332: 6; 'Science or Jealousy?'

‡ Girault, 428: 2, 5.

** Girault, 428: 2.

That this [Girault's] work below is not flawless, blame not so much human fallibility as those conditions which prevented that calm of meditation so necessary to clear thinking, an inexcusable state of affairs in institutions devoted to science and study . . .

To which he added a footnote:

And which, by the way, may account for the Ashmeads, those men who are charlatans, in part at least, because they cannot be anything else where they are.*

Although he left the U.S.A. to avoid what he saw as commerce dominated science, he did not leave this behind. Economic conditions in Australia prevented him from obtaining a position where he could work as a taxonomist and again restricted his publication outlet. He found himself working as an economic entomologist with a break when he tried poultry farming and shop-keeping. In addition, his first appointment in Australia found him once again in bitter disagreement with his superior. These conditions served to deepen his bitterness.

Girault with his family, which had now grown to three children with the birth of Lawrence in Washington on 27 August 1915 and Helen in Hillmeade on 10 August 1917, crossed Canada by Canadian Pacific Railway and the Pacific Ocean from Vancouver to Australia by the 'S.S. Niagara'. No precise dates are to be found on their arrival in Australia but his first letter on record after their return is dated 3 November 1917 and was written from Pentland where Mrs. Girault's family resided. He had arrived back in Australia without prospects of employment and once the family settled at Pentland he began a search. A disaster occurred during the transfer from America to Australia in the loss of a large metal trunk which was amongst his personal luggage. The contents of the trunk were invaluable items such as manuscripts, reprints and equipment he used in his chalcid work (lenses, collecting and mounting tools etc.).† One can imagine the impact of such a loss to Girault who had to rely heavily upon his own library and equipment resources for his taxonomic work. His financial situation precluded the immediate replacement of these items and this loss continued to have repercussions in later years.

His letter of 3 November mentioned above was addressed to the Under Secretary, Queensland Department of Agriculture and Stock and asked for employment. The Under Secretary regretted that no positions were available at that time,

' . . . but if you will advise us from time to time of your address, your application will have every consideration when a suitable vacancy occurs'. In the same month Girault also wrote about employment to Dr James Franklin Illingworth, his successor with the Bureau of Sugar Experimental Stations at Meringa. The Gordonvale station had been moved a few miles to the North to Meringa in 1916 and Illingworth, formerly Professor of Entomology at the University of Hawaii, came to North Queensland in 1917 to take over the cane grub investigations which had been managed in the interim by Mr. Edmund Jarvis. Illingworth in turn wrote to the Department of Agriculture and Stock on 27 November 1917 mentioning Girault's request and indicating that extra staff could be used:

I was surprised to get a letter from Mr. Girault, at Pentland, Queensland. He writes to ask me if I can give him something to do, saying that he cannot accept less than £250, but more than that does not concern him.

As you know, our problem will require the services of a number of men, if it is to be hastened to completion. We could use Mr. Girault in one of the other districts, and in that way get a lot of additional data to compare with ours here.

It remains, then, simply a question of his former relation to the Department. I will gladly make use of his services if you consider it desirable to hire him. I have never met Girault, and would like very much to have a talk with him, so as to be able to form my own opinion of his personality.

The Department had some reservations about Girault's re-employment and, before they would consider the matter, sought an assurance in writing from him that he would devote all of his time to the work of the Bureau as laid down by Illingworth. This assurance was no doubt prompted by the amount of work devoted to chalcidoid taxonomy during 1911–1914 and by the reasons for his resignation expressed in his letter to the Department dated 9 August 1913. This concern that he devote all his time to work of the Bureau appeared again in a less direct fashion as part of a letter dated 4 January 1918 from the Department to Illingworth:

. . . If he is re-engaged I should not be altogether in favour of his taking up work in a separate district as I think he should be under your eye. You might be able to employ him travelling, when he would report to you at Headquarters from time to time . . .

* Girault, 428: 3, 5.

† Lawrence Girault, pers. comm.

In the same letter the Department agreed with Illingworth's desire to interview Girault and advised that the necessary requisitions for rail and steamer passage from Pentland to Meringa were being forwarded to Girault. Illingworth interviewed Girault and received the necessary assurances from him with regard to the work of the Bureau. He wired the Department, 'Girault satisfactory. Accepts position on terms specified'. Girault began service at Meringa on 14 January 1918 on a salary of £250 per year.

Girault's first letter to the Queensland Museum after his return to Australia was from Pentland and dated 15 November 1917.

Will you publish a number of the Memoirs this year? What publications receiving descriptions of new insects are now running? What is Dr. Hamlyn Harris' address?

I did not feel well enough to pay you a visit when there some days ago but hope to keep in touch with you. For the present I am but illy prepared to do any work as I lack a good lens. However, I am steadily collecting and hope gradually to improve my affairs.

During Girault's absence in America, Hamlyn Harris had resigned as Director of the Queensland Museum. Mr Heber Longman took charge as Acting Director and was promoted to Director on 27 April 1918. Girault knew of the change in the Directorship of the Queensland Museum since this letter was addressed to Heber Longman. Although Longman was to continue to aid Girault, he appeared not to have the same sympathy with or understanding of Girault that Hamlyn Harris had. Of course economic conditions made it impossible for Longman to employ Girault or to assist him with large publication outlets, but he was able to assist with mounting materials and other requisites. Longman replied to Girault's letter:

It is unlikely that our Memoirs will be published for some time, owing to the need for economy. In regard to the Royal Society of Queensland, or the Linnean Society of New South Wales, I imagine that there would be some difficulty in placing papers for some time ahead . . .

Employment at Meringa temporarily removed his financial and equipment hurdles, but the problem of finding an outlet for his manuscripts remained, and was to remain for the rest of his life. Letters indicate that he had a microscope and

hand lens at home on loan from the Meringa station. These he used for work on the Chalcidoidea in his own time and his taxonomic work settled down to its usual pace. During 1918 he borrowed his types of the Elasmidae, Trichogrammatidae and Mymaridae plus unidentified specimens from the Queensland Museum with the desire to produce a Synopsis of Australian Chalcidoidea. His letters also reveal that a large series of specimens he left at Gordonvale when he departed in 1914 had been destroyed. It was his intention that these be distributed to various museums but obviously he did not make his intentions clear or explain the value of the specimens. Library facilities for taxonomic work were not available which is not surprising since the work at Meringa was economic with identifications provided by museum taxonomists. Not only were library facilities inadequate but his collection of his own papers was also incomplete and some of his requests to Longman during this period were checks on his own published work. However, his work progressed and by the end of 1918 he was ready to return the elasmid types.

During 1918 serious problems arose between Girault and Illingworth which climaxed in a very bitter enquiry at Girault's request after his suspension by Illingworth. The major source of the disagreement appears to have been diametrically opposed personalities. The situation had become so serious by 14 November 1918 that Illingworth informed the Department:

As a matter of record, I wish to state that I am not thoroughly satisfied with Mr. Girault's work. I have talked the matter over with him, from time to time, and can see no noticeable improvement.

Today, he told me that he recognized *no master*, in reply to my statement that I wished to do everything to assist him. He also said that he was in no way under obligations to me. My efforts to improve his disregard of equipment etc. he considers nagging; and he resents making the weekly reports, which I require, indicating his movements and observations.

It is my desire to make all criticism constructive, but I feel, very earnestly, that we must get results, regardless of personal sympathies. I have always taken the stand that one of the most important duties of an economic entomologist is the recording and filing of complete notes, for reference, and for use in making future publications.

After a long discussion of the matter, Mr. Girault assures me that he will be loyal in the future, and carry out his work as directed. Since there is plenty of work to be done, I am disposed to give him this new opportunity.

However, the relationship did not improve and 19 February 1919 found Girault suspended by Illingworth for being absent without leave. Girault described it as going on 'strike' after being spoken to 'roughly' by Illingworth. The suspension followed closely on a letter to the Department of 15 February 1919 by Illingworth requesting that Girault's services be terminated. Girault, in response, requested an enquiry by the Department and one was held on 17 April 1919 against the wishes of Illingworth. It was presided over by Mr Easterby, the General Superintendent of the Bureau of Sugar Experimental Stations, and his report to the Under Secretary, Department of Agriculture and Stock the next day gave his findings:

I have the honour to report that, acting under the Ministers instructions, I yesterday held an enquiry into the relations existing between Dr. Illingworth and Mr. A. A. Girault, and as to the latter's usefulness or otherwise.

At the enquiry Mr. Girault said he had embodied his charges in the Statement marked "A" . . . This was read to Dr. Illingworth who then made statements in rebuttal. No material evidence was given in support of Mr. Girault's charges, but it is apparent that the atmosphere at the Meringa Station is not conducive to good work. A good deal of the existing friction between Dr. Illingworth and Mr. Girault has I believe been caused by the latter not possessing much sense of responsibility and being careless and untidy with his work and apparatus, while Dr. Illingworth is so much the other way that he has probably expressed his feelings frequently, and so led to much unpleasantness.

While the material submitted to me at the enquiry consisted mainly of charges & counter charges it is evident that under the present circumstances no further useful work in the present investigation can be done by Mr. Girault as Dr. Illingworth will not employ him. It is therefore only a waste of time and money to retain him, and as he was only engaged temporarily, and his engagement may be terminated on one month's notice, I have recommended by wire in order to save time, that he be given this notice & his engagement ended. . .

Mr Easterby before completing his report asked, ' . . . If you have any employment on the Entomological staff at Brisbane I am sure Mr. Girault would be glad of it'. Girault himself wrote to the Under Secretary, Department of Agriculture and Stock in Brisbane on the day of the enquiry requesting a transfer:

In view of the fact that Dr. Illingworth takes the stand that he will no longer employ me at Meringa, because of matters of which you are, or soon will be,

when Mr. Easterby returns, cognizant, I have the honour to request that I be transferred to some other field of activity in my profession. I am interested in the cane grub problem and would like to continue the experiments but in some other section than this one; or failing that, I hope there are other lines in which I can be engaged. I am sorry that matters have turned out so badly here . . .

Girault had something to say about Illingworth in his privately published paper 'Some insects never before seen by mankind'.* The opening remarks revolve around economic entomologists and self-interest:

Research is a labour of love. Strange then to find it all done nowadays as a labour of wages! Must love, too, be a matter of cash? Does the lover demand a wage before espousing the maiden of his choice? By Heaven! it has come to that. Is not such a one now before us, a lover of insects at Cairns [Illingworth] *demanding* and getting his cold thousand, with perquisites, before he will so much as embrace a single gnat? Do not I see other lovers doing the like, bargaining for their loves, all over the habitable globe? 'Tis ruinous. Will not offspring be scarcer and scarcer, bastardy at that, the mothers prostitutes? What a spectacle! In the meanwhile, all true loves may go to the Devil; incidentally, also all men and all things whatsoever without cash.

But who cannot see that these copper-hunting men are not true lovers, but only poachers, snarers, and cunning trappers (not likely to become good fathers!)? Courage, Huntsmen!

Nature is to be explored and known by mankind, not only because she holds so much food and means for living, but also, and mostly, because she is the expression of the majesty of the mystical All. Are these chalcid-flies below but so many more parasites with which it is hoped to increase our already superfluous wealth? Far other I see them.

This is followed by the description of a fictitious new genus and species, *Shillingsworthia shillingsworthi* from Jupiter, to which is added the ironical dedication to Illingworth:

This so thin genus is consecrated to Doctor Johann Francis Illingworth, in these days remarkable for his selfless devotion to entomology, not only sacrificing all of the comforts of life, but as well his health and reputation to the uncompromising search for truth and for love of "those filmy people of the air". Honour him!

Girault anticipated the outcome of the enquiry in a letter to Longman:

* Girault, 356.

. . . I am sorry to state that I will have to leave here before long on account of serious differences between my chief and myself. In case this is so I have in mind going into business in a small way in Southern Queensland but this will handicap me very seriously in entomological work, so I am writing to ask if you can give me work on a small salary at the Museum or elsewhere (as for instance general collecting, systematic work or etc.). I am anxious, of course, to revise all my former work on Australian chalcids; this is my special object at present but does not take all of my time by far. But connection with a Museum gives me facilities otherwise lacking . . .

Girault was informed of his dismissal in a letter dated 24 April 1919 from the Under Secretary, Queensland Department of Agriculture and Stock. His services were terminated one month from that date on 24 May 1919. Before this date he was on his way south to Brisbane having been granted annual leave due to him and the Giraults arrived in Brisbane during the severe 1919 influenza epidemic. By 21 May they were living at Brassal, Ipswich in what Lawrence Girault has described as a rural home. Ernest Girault indicated that his father tried his hand at poultry farming here but without success.

In reply to his request for work, Longman had informed him that a position at the Queensland Museum was not available and suggested that he contact Henry Tryon at the Department of Agriculture and Stock in Brisbane. Troubles continued to plague Girault adding to the frustration of being kept from entomological work and in desperation he wrote again to Longman on 20 June 1919 asking for assistance. It is obvious from this letter that he was in a state of financial embarrassment and lacking facilities:

. . . The return of the specimens [his types on loan from Q.M.] has again been delayed; please excuse this because I am now kept very busy with other matters. I shall have to ask you, I fear, to refund the amount necessary to send them, since I can ill afford even small expenditures at present. Please say whether or not you can do this and these:

- (1) Can you publish in the next *Memoirs* a paper of moderate length describing new chalcid-flies? When will the MS. be required?
- (2) Can you pay me for the types, a fair amount for each? I think 3^d [3 pence] would be a moderate price. Such a thing would afford me some aid in continuing my studies along this line.
- (3) I wonder if the Museum could supply me with the facilities necessary for such work: a) any microscope with 1/6- and 2/3-inch objectives (B. & L.) or equivalents; b) slides, cover-glasses and balsam; c) slide labels; and d) vials of cheap alcohol or the vials alone; e) tags or card-points,

pins and shellac. But the microscope is the one essential (with the slides), I have a hand-lens . . .

He did not ask for these aids without offering something in return and his letter continues:

In return for these kindnesses I will certainly aid you in any way possible and do all I can to place the study of Australian chalcids on a permanent and workable basis. My former work needs revision and as soon as I have facilities I should like to do the Aphelininae, tabulating the genera and species as I have done with the Mymaridae and other two groups. My experience in America has considerably enlarged my knowledge and it would be a shame if I could not use this in perfecting such a piece of work.

Longman replied sending a postal note for five shillings to cover postage but said the other matters raised would be answered at a later date. Girault used the money to return the Trichogrammatidae and Mymaridae that he had on loan remarking that he retained only those with Aphelininae types on the same mount. One of the difficulties in dealing with Girault types is his mounting of the types of more than one species on the same microscope slide. His letter advising of the return of the Trichogrammatidae and Mymaridae gave an indication that the multiple mounting of specimens was not to his liking, but was forced upon him, ' . . . because I had no slides available at Gordonvale . . . ' This letter also advised that he would refund the money for postage as soon as convenient and a post script to the letter comments on his request for payment for types, 'I may be better off financially before long so need not charge then for the types. It depends upon how much of a business person I am. So far things meet evenly'.

In the reply advising of the safe receipt of the trichogrammatid and mymarid types Longman answered the question of publication of a paper by Girault but left the other questions of supply of facilities such as a microscope, slides etc., again unanswered. The chance of publication of a paper was slim. Because of economic conditions the publication of Girault's paper would depend upon its length. At this time there were other authors besides Girault being refused space in the *Memoirs* because of these economic conditions. On 1 August, Girault advised Longman that his paper would be about ten pages and took the opportunity to remind Longman of his request for facilities. Having once more received no reply from Longman he wrote a rather testy letter to

him on 30 September. One interesting point of this letter is his attitude to his work. He considered it a moral responsibility:

I have waited very patiently for a definite reply to my request for aid in regard to apparatus and certainly, it seems to me, you ought to give me some satisfaction. Kindly write about this. I cannot afford to visit Brisbane at present, though it is so close. You have also ignored the question of my publishing a paper in the Memoirs.

I assure you that it is now becoming immaterial to me where these papers are published but more whether they are published or not. What is the use of bothering about such work if it is considered of no value? Why does not the Museum destroy my types and all others. It is not I who lose but organised science. But the main thing is, that if science is to continue as it is, I, who have been allowed to become morally responsible for a small part of its work, am suddenly halted and not allowed to continue. Do you consider this good in respect to anything whatever? I ask you a small thing, indeed!

Kindly state your position.

In typical Girault fashion he expressed himself in a very direct manner. However, one must view this letter in the light of pressures operating upon him at that time. By the 7 November 1919 he had left Ipswich since his poultry venture was not the success for which he had hoped. In September, when this letter was written, he was probably looking for alternative means of support for his family. If one adds the continuing financial and professional frustration to the delay in Longman's reply to his original request for help dated 20 June 1919 one can perhaps understand the intensity of the feelings expressed to Longman.

Heber Longman returned from annual leave on 22 October 1919 to find Girault's 'remarkable letter'. His reaction was predictable:

. . . Recently approval was given to the expenditure of a small sum for the publication of our Memoirs in parts, but I have to give precedence to actual Museum work and am unable to guarantee the printing of your paper. Your strictures are wide of the mark in view of our correspondence. I have previously informed you, with regret, that we have no microscope available for loan.

Surely many of your difficulties are of your own making, and it is ridiculous to write of "organised science" as though we wished to ignore you the contrary we should be glad to help you as far as circumstances permit.

These two letters appeared to have cleared the air between Girault and Longman for thereafter their correspondence was always cordial. Longman continued to assist him as much as possible.

Girault's reply to Longman explains his frustration and this together with its tone was probably the reason for the maintenance of good will between the two men:

In regard to yours of 22nd ultimo, no hard feelings but I was impatient at your indefinite replies. As I said before I need the help which your institution is so able and willing to give . . .

The letter deals with several other subjects but the most important one is his intention to continue depositing his types with the Queensland Museum. He only applied one provision and that was that he should have access to them; a provision that was always met. His paper did not appear in the Memoirs probably due to economic conditions.

This reply by Girault dated 7 November 1919 bears the address, 'Brisbane Road, Wynnum', a bay-side suburb of Brisbane. At this address he was trying a new business venture; a small fruit and vegetable shop.* A microscope was obtained on loan from Dr Eland Shaw, a medical practitioner also of Wynnum who worked on the taxonomy of cockroaches. With this necessary tool in his possession he resumed his revisionary work and wrote to Longman to borrow the types of Aphelininae.

During 1920 Girault found that operating the shop severely cut into his time, but he finished his synopsis of the Elasmidae which was begun shortly after his return from America. The manuscript was forwarded to Longman for consideration on 13 October 1921. Longman's reply was encouraging but he was still restricted by the shortage of funds and this synopsis did not appear in the Memoirs. Thus economic conditions prevailed against him once more and he extracted from his synopsis the descriptions of new species which he had published elsewhere in shorter papers. The description of *Elasmus froudei*, one of the new species known to be in his synopsis of the Elasmidae, was published in *Insecutor Inscitiae Menstruus*, volume 10 issued on 31 January 1922. This journal, established in 1913 by Harrison G. Dyar in memory of Augustus Radcliffe Grote, a noted American lepidopterist, was the largest, single outlet for Girault's papers in the period after 1917. This is measured in terms of number of papers rather than number of pages, since many were just of one or two pages, and does not include his privately printed papers for which he paid from his own meagre funds. Most of the papers of this post 1917 period contain

* Ernest Girault, in conversation.

descriptions of new species except those which deal with economic insects such as the banana-rust thrips and the orange tree bug. His synopses were never published.

It was not long before economic and equipment problems arose again. A shift in address to another shop occurred around late September to early October of 1920. During 1921 Longman assisted, on request, with pins, tags, slides, glue, balsam etc. Girault's letter of 30 September 1921 again expresses his desire not to double-mount material on the one slide. The equipment problem arose later in 1921, as his letter of 15 November 1921 to Longman explains:

I have been going steadily ahead with the chalcid-flies, thanks to Dr Shaw, but a few days ago he informed me that he could no longer spare the microscope I have and as a consequence I am in a bit of a quandry. Have you an instrument I could have on loan; or better still, could you find a small billet there for me. I could do the work there and would be willing, at the same time, to do some of the routine work in the interest of the Museum. The salary need not be a large one. Access to all of the types at one time would be another gain. In case I cannot obtain a machine to work with or contract over to the Museum, I very much fear that the progress of the work will be much retarded and my interest flag as a consequence. Or I may have to move away in order to be suited. I ought to have several hundred new types for the collection by this time and could easily complete the work, with the constant additions, within a year and a half, I fancy. I am applying to you first before applying elsewhere.

Of course a position with a museum would have suited the type of work Girault wished to do but this was not possible as Longman informed him that it was '... a period of retrenchment rather than of fresh appointments ...' He had previously informed Girault that he could not help with a microscope but suggested a possible source. Girault was sorry that no position was available at the Museum:

... However, I hope that you can help to this extent — send me another box of slides and cover glasses. I will try to get Dr Shaw to extend the loan of his instrument. I ought to buy it of [sic] him but cash is scarce and this business I am in will not make me rich — well I could make more but lately nearly all of my time has been first upon insects and the business carries us along with care.

The postscripts to this letter explain the business situation more fully and show that Girault retained a sense of humour in spite of his problems:

The business improves with the season and our rival has just gone out — insolvent of course. This makes it better — there were too many shops and we were in first. I will not cry over him, Louse.

I ask you firstly (for slides etc.) because they come back to you and I cannot afford to buy the quantity I need.

You might have reason to complain if instead of slides, I sent up for "de do".

Girault's three business ventures were not very successful. From the letter above one can see that his interest was really the Chalcidoidea. During this period it is fairly obvious that the family suffered economic hardship and it was during the period at Wynnum that Girault took up work as a microscopist for the Hookworm Campaign; a campaign being undertaken jointly by the state of Queensland and the International Health Board, not the Rockefeller Foundation as is generally thought. In the early nineteen hundreds Hookworm infestation of people was a significant problem in most countries lying between 36 degrees North and 30 degrees South. The aim of the campaign was to locate and eradicate the problem at the same time educating the public in the preventative measures. Location involved microscopic examination of faecal samples and Girault was one of the people employed for this job. At the same time blood samples were taken and examined for blood parasites. During this period of employment Girault temporarily suffered from something likened to a stroke which involved loss of sight and of mobility. He later was to describe it in 'Microscopitis, Womanitis and new Hexapoda' published on 31 October 1923:*

Great Discovery of Microscopitis

The following was related to me of a horse that I knew of in the animal's own wards [sic]:

"I am a stallion, long known far and wide for the worth of my offspring of a certain race, but having turned rebellious because of abuse, since abandoned by my owners and left to starve or start life again. But need and mischance finally drove me back to my old place, which was the stables of science, where, submitting to be harnessed again, I was guaranteed manger and oats. My new livery was that of a poor house called Hookworm Campaign, and I was to be driven daily (for said lodging) through a lane called Microscope, often travelled before, but less speedily and with caution, since it is a wearing way.

* Girault, 372: 1.

"Down this lane, then, in gasping haste, was I driven to catch a terrifying worm's egg in dung, speeding for seven hours. Being soon broken to this work, severe and harsh even to my strength and wont, I was driven to field after field of bloody stones in search of the monsters Malaria and Filaria, which hurt only sick, weak or unprotected people, and occur in other countries, but seldom in that where my manger was, namely, the Queen's Land.

"So I found but few in all these rough fields; but I was so affected by the terrible speed and the blood and exaggerated horrors which I encountered (fancy having bloody balls passing under your nose all day long! Provoked and set to smell blood, eh?) that my brain became more and more inflamed, and I began to be affected by Corpuscular Meningitis or Bloody Brains, a symptom of the Staggers, an affection of the eyes which made them see blue, and of the heart, which, seeing its vitals toyed with, was pained even to curses.

"But, continuing a week or so more on these labours, I caught the Dancing Frenzy or Microscope Itch, a nervous complaint or paranoia (not that American mild sickness, the chief symptom of which is considered to be running amuck when drunk on ale — only — and whose poor supposed victims — paranoics — are persecuted and hunted with as much fury and fanaticism as the Catholic once hunted the Huguenot), whereby the affected one hates instead of loves, and desires to quarrel even with his best friend; it is known as Sawyeritis by the learned, and the symptoms are a feeling as if a huge globe had gathered under the base of the skull at the top of the neck, and the heating of the latter at the back beneath this ball; 'twas a very material sort of getting 'hot under the collar' from trotting over the endless gory cobbles strewn with enormities, together with bumping and scraping against the sides of my highway with galling harness.

"This continued till before long the collar smoked, ignited and stabbed me one fine morning i' the spinal marrow from the neck half-way down (as if with a hatpin); at which for a week I fought paralysis.

"But my trained ignorant coachmen, knowing nothing but what they had been told in Universities of Illinois or like high schools, and thinking nothing but what they lived by, thought I had hookworm, and so I was again thrust afield as a useless horse; whereas a strong purge would heal the whole weak world of that scratch in a trice! So that mere tunnel would have killed me shortly, even as the monotonous grind of machines does kill the feelings, hearts and bodies of human kind.

"I roam the healthy fields now a wiser horse, hating the harness and all coachmen stupid and cruel enough to trice up any heart in such gall-nuts. Fancy a stallion such as I, made to tread mill, wear out machines, even harnessed and driven by those mechanicals, Americans! Whoopla! a kick and away. My work of begetting children took not so much time, and I could play between whiles, escaping that spinal itch paralysis.

"I am no fine gentlemen (like this namby Sebastian dago American doctor coachman), who stabs people sometimes (as well as bows to them), wearing the same smug respectable manner at all hazards. Hence my stallionic spleen and righteous crave to make five pieces of one head. I could have shaken his skin off, but the restrained impulse whirled my brain into semi-idiocy. Blue murder, think you, Sirs? Rather, think I, as if a bolt from near Heaven itself. From my soul, thou recreant and slave pedant! A fig for thee, thou innocent school-boy! Scat, thou bastard tyrant! Wouldst have me trampling piss-ants?"

A shameful tale! Here was a gentle and industrious horse almost compelled to murder his American master! For what, Sirs, save blood-begetting outrage!

Girault's first choice for employment, the Queensland Museum, was not open to him and he directed an enquiry to the Queensland Department of Agriculture and Stock on 13 February 1922. A chance for employment in this area did not appear until November 1922 when Henry Tryon, the Government Entomologist and Plant Pathologist, wrote a Memorandum requesting that he be given an extra staff position to be filled by a capable properly trained entomologist. The position was approved, advertised and attracted thirteen applicants. Tryon whittled the field down to three, one of whom was Girault. He then subjected the three to detailed evaluation based upon academic status, posts held, field work, laboratory work, museum work, general and special entomological knowledge, contributions to science and knowledge of economic plant life. Each category was assigned 100 points and Girault's totalled 800, well above the 360 and 305 for the other applicants: Tryon found Girault to be modest and in his written assessment he spoke of Girault in glowing terms:

... Mr. Girault's modesty in mentioning only the posts held by him, and although they are evidence of the fullest training and experience, is not permitted to influence me, and so therefore I append a list of 100 of his contributions to Entomological literature that have established for him a world wide fame that, if possible, should make him proud. . .

Later in the assessment Tryon deals more closely with 'Contributions to Science' and again comments upon Girault's modesty:

... Mr. Girault's [contributions to science] although largely relating to the smaller hymenopterous parasites have dealt also with more general economic entomology usually treated of from [sic] the point of view of the biologist and field worker. On this subject,

Mr. Girault is characteristically silent. I have, under the circumstances compiled "Contributions by A. A. Girault to Entomological Literature" (attached) — an extraordinary record of work embracing 100 titles.

Tryon recommended that Girault be appointed Assistant Entomologist on his staff in Brisbane. One wonders whether Girault's original application to the Department may have prompted Tryon's request for another position to be made on his staff. The Memorandum by Tryon recommending Girault's appointment makes interesting reading since it deals with the Illingworth — Girault incident. Tryon took the opportunity to familiarise himself with the details on file concerning Girault's dismissal from Meringa in 1919. After reading the records Tryon could 'not find any insuperable grounds — or in fact few if any — why these services should not be again secured in a different capacity'. He interprets Mr Easterby's conclusion in 1919 — 'If you have any employment on the Entomological staff at Brisbane I am sure Mr. Girault would be glad of it' — as 'tantamount to recommending him for further service in the Department', and Tryon concluded his memorandum with the recommendation that Girault be re-employed by the Department.

The Memorandum was dated 7 December 1922 and Girault began work on Monday 19 February 1923, twelve months after his initial application. Because he retained his American citizenship he was only able to be appointed in a temporary capacity. By this time the Giraults had shifted from Wynnum to Kingston on the Brisbane city limits. Lawrence Girault described the property in detail. It was far from luxurious:

... a ten acre tract in a partial clearing, in a house, part brick, partly galvanised iron with dirt floor ... The major part of the property was virgin eucalyptus forest ... with scrub underbrush of ti-tree and banksia and the like ... My father commuted by bicycle to Sunnybank [a Brisbane suburb several miles away] and by train to Brisbane. He arrived home quite late and on weekends split fence posts from trees he hand felled to fence the property. We were hurried out of there by a huge bush-fire which encircled us. We made our exit with all possessions in our spring-cart pulled by Dolly, our mare, we had owned since Ipswich.*

Thereafter followed many shifts for Girault and his family around Brisbane involving the suburbs Toowong, Banyo, Windsor, Morningside, Norman Park, Taringa and finally Indooroopilly where the family remained from 1929. There were two shifts of greater distance in this period from 1923–1929

which involved Stanthorpe and Gympie. These will be dealt with as they arise because they were important in Girault's life. He collected wherever he went and all of these localities are to be found amongst his specimens. The shift from Kingston to Toowong occurred about March of 1923 and the family was to become unsettled again fairly soon and shifted to Banyo in May of the same year. December 1923 found the family with problems necessitating a shift to Stanthorpe, 142 road miles from Brisbane. Mrs Girault had contracted tuberculosis after two serious bouts of pneumonia while living at Wynnum.* The shift to Stanthorpe was necessary for her health. There are three letters concerning a request for transfer to Stanthorpe; two by Girault and another by his wife. It appears that Mrs Girault shifted to Stanthorpe for health reasons while Girault remained in Brisbane to carry on his work. Girault's second letter to the Department, following his first by two days, was written because of his wife's decline in health:

Two days ago I wrote requesting transfer to Stanthorpe ... I have since been to Rockhampton and while there heard that the wife, having recovered from the hospital, had gotten into difficulties and is likely to have a serious setback. Thinking my presence necessary there, in urgent haste I left on the 7th, entraining for Stanthorpe at Brisbane on the 8th.

I regret having to take this step, Sir, and hope that we will not have to suffer for it. In the meanwhile I desire to request that you take favourable action upon the transfer. I cannot make expenses as things now are, Mrs. Girault needs my aid and the family separation has caused me constant work, worry and difficulty. I am in an almost intolerable situation, financially and otherwise. I hope, Sir, that you can aid me to this extent and thanking you.

Mrs Girault's letter was written the day before her husband's second letter:

I have the honour to beg that you will consider favourably the application of my husband, A. A. Girault for a transfer to this district as our home is now located here on account of my delicate health, and owing to which I cannot return to Brisbane ...

The Department, however, regretted that it was unable to grant this transfer because of work programmes already in progress. A transfer to Stanthorpe would have required transfers of other personnel as well as changes to existing work programmes. It must have been a difficult decision for the Department to make. The Giraults

* Lawrence Girault, pers. comm.

returned to Brisbane taking up residence in the suburb of Windsor.

At the end of 1923 Girault's employment came up for review and was extended for another six months until 30 June 1924 and reviewed again; a pattern which was to continue during his employment with the Department although the period between reviews varied. After these two reviews it was reviewed every twelve months during the remainder of Henry Tryon's period as Government Entomologist until 30 June 1927. Thereafter, during Mr Robert Veitch's period as Chief Government Entomologist, it was reviewed every six months until 30 June 1931 and finally every three months until his services were terminated on 30 June 1935. The period 1929 through to 1935 was one of economic depression in Australia with unemployment running high. One can imagine the strain of economic uncertainty he suffered during this period. Lawrence Girault's notes confirm that his father was under strain: 'My father's employment with the Queensland Department of Agriculture was on a quarterly hire basis, since he was not a citizen of Australia, and of consequence suffered many anxieties . . .'. The family also suffered the loss of Mrs Girault who died on 9 September 1931 aged thirty-nine years. She was buried at the Toowong cemetery on 10 September of that year. In suffering the loss of his wife Girault also acquired the sole responsibility for his family which had grown to five children with the birth of Daisy on 19 April 1925 when the family lived at Morningside, Brisbane, and Frank on 23 May 1928 when the family lived at Taringa, Brisbane. At the time of Mrs Girault's death the children were about 18, 16, 14, 6 and 3 years of age.

During these years of employment with the Department he was involved in field work on economic problems in areas adjacent to Brisbane, e.g. Maleny, Montville, the Darling Downs and so on. However, there was one investigation which took him further afield to Gympie and, since he was to be there for some months, his family accompanied him. They arrived on 8 October 1924 and Girault set up a laboratory near Chatsworth.* The laboratory was in a banana packing shed† and the main investigation was on the banana rust thrip. Lawrence Girault supplied some notes on this period:

[We lived] At Two Mile on Maryborough Highway in a farm house set ½ mile east of the road . . . My father was working on banana thrips, bunchy top and borer and commuted to Chappel Hill banana farms by bicycle . . . ‡

The investigation was completed on 23 February 1925 and he returned to Brisbane with his family. This work on the banana-rust thrips introduced him to the taxonomy of the Thysanoptera and the year 1925 saw the appearance of his first papers describing new genera and species of thrips. It was an interest that continued for many years and the Queensland Museum archives contain numerous requests from Girault for copies of descriptions of various thrip species. Longman provided them all in the form of typed copies from the original and the Queensland Museum received most of his Thysanoptera types. At no stage did this work on the Thysanoptera reduce his interest or work in the Chalcidoidea.

Girault and Tryon apparently worked well together without friction. During this time Tryon was required to complete a report on Girault and his work each time Girault's period of employment came up for review. In all, two such reports were submitted and from them it was obvious that he found Girault's services satisfactory in spite of minor differences of opinion:

In response to your [Under Secretary, Queensland Department of Agriculture and Stock] memorandum of July 3rd, 1925, wherein I am invited to deal with the qualifications characterising the Assistant Entomologist's, — Mr A. A. Girault's discharge of his public duties as a subordinate officer, I have pleasure in testifying as under: —

- (1) Mr. A. A. Girault's general efficiency is satisfactory, and in some provinces of entomological work moreover, he exercises attainments of a very high order.
- (2) His persistent diligence, especially with regard to undertakings that claim his scientific interest, is noteworthy.
- (3) His conduct in his post is generally good, but when his views regarding the relationship between Chief and subordinate do not quite coincide with those of the Head of the Branch with which he is connected, he *temporarily* resents control, but not to an extent to impair the general excellence of his work.
- (4) Two published Bulletins — one on the Banana Rust (Thrips) Disease and the other on the Orange-Tree Bug, prepared by him and embodying original scientific work may be adduced as indicating both his "diligence and general efficiency" as well as professional acumen.

This detachedly favourable report not only indicates that Tryon appreciated Girault's ability

* Girault, 385: 473.

† J. Weddell, in conversation.

‡ Lawrence Girault, pers. comm.

both as a taxonomist and as a field entomologist but also indicates that their relationship was not without incidents. Girault would not submit to authority when he thought he was right and one's mind goes back to his statement to Illingworth, 'I recognise no master'. However, it appears that Tryon and Girault settled their differences before they developed into full scale conflict as between Girault and Illingworth. There does appear to have been one outstanding problem; the conflict of Girault's taxonomic interests with the economic entomological conditions of his employment. Letters to Longman have suggestions of this problem and there is one in which it is quite explicit. It was written towards the end of his work on banana-rust thrips at Gympie on 9 December 1924:

Thanks for the types [Eurytomidae] — arrived in good condition, no losses. I have been unable to get anything out of H. T. [Henry Tryon] of this Department. I want an insect box to put specimens in. Could you send me one on loan? I have spms. stuck all over the place and they will soon be ruined. They are intended for the Museum. Some are beauties, some types of rare forms collected here . . .

The prohibition placed upon me is ridiculous as it (collecting etc.) does not interfere with the mechanical-practical-insect-spearing tree-working-fruit-packing "job". It is due however, to the person named.

It seems, then, that Tryon gave Girault instructions banning taxonomic work during working hours and would not give Girault any material assistance for this work. Tryon's stand was probably justified. Girault was employed as an economic entomologist and it is quite probable, given his single-minded purpose, that his enthusiasm for the Chalcidoidea unintentionally encroached upon his other duties. This ban appears to have continued for the rest of his working life with the Department and was probably a source of friction between Girault and Tryon's successor, Veitch.

Henry Tryon retired in December 1925* and was replaced by Robert Veitch. At the same time the title of the position was changed from Government Entomologist and Vegetable Pathologist to Chief Government Entomologist. There does not appear to have been any serious friction between Girault and Veitch although this relationship too was not without incident. Veitch refused to allow publication of one of Girault's papers in the *Memoirs of the Queensland Museum* and Girault wrote to Longman asking for his manuscript to be returned. No reason for Veitch's action appears in the letter but the introduction

to 'Some New Hexapods Stolen from Authority' gives a description of how Girault viewed the affair:

These data were actually prohibited by a Director on specious grounds and treasonably and as if he owned them (if so, then Science itself, even the winds, even the moonlight?). These head-men give no aid of a generous sort, but act as if they were engaged in a kind of competition in vanity; they treat it with contempt. Is it envy, or fear, that causes all this persecution? Institutions also seem to own Science, which is to say the winds, too, and even the man in the moon? Authority has the dangerous idea that Man is only a mass of intestines: these must be kept stuffed at hazard and's a desperate enterprise.†

The reason for the ban on this paper was probably the general ban on Girault's taxonomic work during employment time; certainly the number of taxonomic papers published in journals decreased after 1927 and correlated with this is a peak in issue of privately printed papers beginning in 1924 and to 1930 reaching its maximum in 1926. Apart from his now traditional anti-economic entomology theme there is evidence of feelings of persecution. It is understandable that Girault, prematurely aged by economic hardship and professional frustration, should feel this way. It is equally understandable that Girault's driving interest in the Chalcidoidea would result in its intrusion into working time. He accuses Veitch of owning science, i.e. saying what work could be published and what could not. Veitch on the other hand was responsible for seeing that Girault's duties in economic entomology were carried out. This refusal by Veitch to allow the paper to be published may have been an attempt to curb Girault's taxonomic work during the time he should have been engaged on economic entomology.

Only one report upon Girault's work with the Department appears to have been required of Veitch and this was in response to a series of questions by the Department in June 1933:

With respect to your memorandum of 19th instant addressed to me during my absence in North Queensland, I have to advise as follows:—

- (1) Portion of the work performed by Mr Girault is of a permanent nature, but the bulk of his time is at present devoted to taxonomic work which must sooner or later reach finality.
- (2) He is competent to perform the duties at present allocated to him.

*Anon, 1929: 40.

† Girault, 422: 1.

- (3) These duties are at present satisfactorily performed.
- (4) His conduct, diligence and efficiency are at present satisfactory.
- (5) I do not recommend him for permanent appointment to the staff of this Branch.

What prompted the Department to ask this of Veitch is not known. It may have been a request from Girault for permanent status which is probable since the worry of having one's employment reviewed every three months in a period of high unemployment must have been tremendous especially with his wife's death and a young family to support. Why Veitch did not recommend his appointment to the permanent staff of his branch is not known either, but it is fairly probable that Girault's preoccupation with taxonomic work together with a possible reputation for increasing eccentricity were the reasons. The remainder of the report is favourable and the working relationship between these two men appears to have remained amiable; in fact it was Veitch who assisted Girault in obtaining a grant from the Commonwealth Science and Industry Endowment Fund in 1936 to continue work on the Chalcidoidea after his services with the Department were terminated in 1935.* The letters concerning termination of his services on 30 June 1935 give no details of the reasons for this decision. Girault protested to the Minister for Agriculture and Stock, but to no avail.

Letters to Longman and conversations with Ernest Girault have revealed that Girault supported himself by work in a quarry, on roads, and unemployment relief (the dole). In this period he describes himself as 'dolee and coolie'.† Recent correspondence from Ernest Girault has supplied some more information about '... The final humiliation of stone breaking in the quarry at Indooroopilly ... he was by then quite frail in health and returned each day in a state of complete physical exhaustion. It is hard to realise now just how hard conditions were, and to estimate to what extent a starvation diet contributed to his decline ...'

The Grant, £75 paid in monthly instalments over three months, from the Commonwealth Science and Industry Endowment Fund offered to Girault on 15 October 1936 allowed him to again return to his synopsis of Australian Chalcidoidea free from money worries. Veitch was made supervisor and Girault commenced work at the Queensland Museum on 1 May 1936. Girault wrote to Longman on 4 June 1936 informing him of a delay in the work because of a late monthly payment:

As I haven't received a June cheque from Melbourne, I have ceased activities for the present pending inquiries. Until this grant is more stable I haven't confidence enough in it to continue and so my attendance at the Museum will be irregular the time being ...

I am thinking of applying for the dole again. I don't know what to do except wait. Have no word from them and I'm only a bit alarmed. I'll go on here for a few days since there is plenty of work to be done at this end.

Payments resumed and Girault continued with the work but in September was forced to apply for an extension of the grant. Four months extension was allowed at £9 per month for completion of the work. On 17 June 1937 Girault informed the Fund that the work was complete and a further grant of £20 was offered to allow him to add a bibliography and an index with the condition that the completed manuscript be lodged at the Queensland Museum. Longman took delivery of 2483 hand written pages of manuscript weighing thirty-seven pounds. This manuscript is now in the Australian National Insect Collection in Canberra and there is a copy in the Queensland Museum. In due course the £20 was made available to Girault.

His feelings of persecution and worry over financial difficulties led to a progressive decline in his health. July 1939 found him in Goodna Mental Hospital, near Brisbane, whose facilities were also available for those unable to care for themselves. Within a few months he was brought back to his home at Kate Street Indooroopilly by his family. The year 1940 found him at the Dunwich Benevolent Asylum on Stradbroke Island. This institution offered asylum for old people and those who could not care for themselves but had the disadvantage of being connected to the mainland by a boat service that was far from frequent. He spent the remaining years of his life at Dunwich and during this time continued to write to the Museum. The letters show a decline in handwriting and bouts of depression. They contain expressions of fondness for the Museum staff who had helped him over the years and many ended by sending regards to particular members mentioned by name. Girault's first letter from Dunwich to Longman, dated 1 August 1940, began, 'I have taken a sort of holiday ...' and asked for information on his paper in the *Ohio Journal of Science* just issued.

*J. Weddell, in conversation.

† Girault, 448: 3.

He was allowed to return to Brisbane for a brief visit in November of 1940 and stayed with Ernest at Taringa. The possibility of this visit was mentioned in his letter of 25 September 1940 which also shows that he had lost none of his enthusiasm for collecting:

I hope all is well there and that I can visit you before long. I merely [want] to renew old times and says "howds".

Can you send me vials and alcohol? Just a few of the vials. Regards to Mr. Hacker, also to the staff, Miss Watson and Miss Murphy.

While in Brisbane he contacted Longman asking if it would be possible to have portion of his manuscript at Dunwich in order that he might begin an index to it. Longman advised that permission would have to be sought from the Commonwealth Scientific and Industrial Research Organisation and from Dr F. C. Turnbull, the Superintendent at Dunwich. The task of obtaining this permission was undertaken by Longman and his letter of 7 November 1940 to the Secretary of the Scientific and Industrial Research gives an ideal summary of his view of Girault and explains his reason for assisting him. The other matter of importance is that Veitch concurred with his remarks:

You will probably remember that we hold in the Queensland Museum a big pile of MSS. which is Girault's monograph on Chalcids. On occasions during the last two years Girault has done some work on this MS., but I doubt whether this has been of any real value.

Latterly his eccentricities have become more pronounced and for a period he was in our Mental Hospital at Goodna. He is now at the Government Benevolent Institution, Dunwich, in Moreton Bay.

He has written to me to know whether he could have two family sections of his Monograph to work at. In view of his very special work in the past and his recognised prestige as a systematist on this group, it would seem a reasonable request, if it would give him some interest in life. However, I do not think that he is now capable of doing any worth-while revisionary work or even indexing. I think that he would personally take great care of the MS . . .

Mr. Robert Veitch, who knows Girault well, is aware of this request and agrees with my remarks regarding it.

Longman's letter to Dr Turnbull runs along the same lines but also requests special facilities to allow Girault to carry out the work. Dr Turnbull arranged for Girault to be shifted from ward accommodation into a single tent, however he advised on 11 November 1940:

Since returning from Brisbane, he seems very unsettled, and his mental condition is such that he has to look around a good deal before he can decide which tent he resides in.

I feel that you can rest assured that we will give him every facility and comfort possible in an Institution of this description.

A p.s. was added to this letter which did not seem hopeful of his settling down:

He has been in a tent for several days, but seems to lose himself, and he has been visiting the tents of other men while he is looking for his own tent. This practice is very objectionable as far as other inmates are concerned, and it is regretted that it will be impossible for him to keep a tent unless this practice ceases, when he would automatically revert to residence in an ordinary ward.

No further records occur on this matter, but since his letters show no interruptions in his work it is safe to assume that he eventually settled down. Also the shift from ward accommodation to a single tent brought a new burst of activity. When he first arrived at Dunwich he had amongst his belongings three manuscript volumes of his poetry. Now that he had privacy he began revising them awaiting the first section of his manuscript and he advised Longman on 20 November 1940:

. . . I have better quarters now and have copied and revised a lot of my poetry since. I hope to see you soon about collecting vials and alcohol. I now am collecting for a Javanese specialist (Chalcidoidea). Have just begun, so have no vials here yet. No general collection is being formed.

Could you have this short MS.* typewritten and sent to the Editor of the *North Queensland Naturalist*, Cairns. Should they be abolished, please try the *Queensland Naturalist*. Has the current issue of this appeared yet? I have a chalcid article in it.

I am a new man since my privacy; and also my liberty. I hope things are better all round.

I am greatly obliged to you. Regards to all there. I am also obliged to Dr. Turnbull.

Longman was pleased to hear that Girault was 'feeling so much better' and arranged for typing of the manuscript. However, Girault was to find that his new accommodation had accompanying limitations. By this time he had received part of his MS. and on 17 December 1940 he reported to Longman on progress with the index:

* Girault, 461: 132.

In reference to the *Index* of my monograph I have to report that the part Cleonymidae has been completed. I have to work slowly, as the conditions here have made it almost impossible to rest. First the hut was full of fleas; then the mosquitoes overwhelmed me. I am also very poor financially, having only an allowance of 2/- [two shillings] per month . . . The Javanese specialist has not replied to my last letter; and is only prospective yet . . .

Longman remained helpful and supplied Girault with glass vials, alcohol, paper and typing services. He tried in all ways to help Girault retain his interest in entomology but was unable to agree to the many requests for employment to be found amongst Girault's letters of this period. At this stage Girault's life was drawing to a close and he was to live for but a few more months. Although he suffered bouts of depression Girault continued to work on the Chalcidoidea. His letter of 30 December 1940 contains the worries which beset him in these months prior to his death:

. . . I hope to be employed in the New Year. I have a son and daughter to support. Can you employ me upon the staff of the Museum.

The injustice suffered by me as to the children ought not to be. My grown daughter and son ought to be free. But the one is a house-wife and the other a pseudo-husband (and the pseudo-father of two children of my own, the ones mentioned). Moreover, I am homeless.

In the meantime I am suffering needless poor health; and desire, as soon as possible, to be restored home and to my people and friends. Please consider the matter. In view of the War, [World War II] I will not harshly view matters. But unemployment ought to be abolished. I have kept away from home voluntarily, so as to give them more room. You know how things are there. They need not be alarmed about me; or fear me.

The reply to this letter could not be found, but with the war and Girault's poor health Longman would not have been able to offer him employment even if he wanted to. Girault contacted the American Consul with regard to extradition and in his letter of 15 January 1941 informs Longman of his effort:

I had an interview with my consul but he has no funds for the purpose of extradition. So I have had to return to Dunwich. I was very disappointed; but for the present I might consider resuming the index work . . .

Hereafter, I will restrict all mss. to the Australian continent. . .

He continued to work on the index and later letters show a return to his previous enthusiasm,

' . . . I am not so demoralised now . . . ' As well he prepared the manuscript of a short autobiography.*

His death on 2 May 1941 at the age of 57 years was announced to the *World in Science* issued on 4 July 1941.† Thus ended the life of a controversial and prolific entomologist who is remembered more for his eccentricities than his tremendous contribution to the taxonomy of the Chalcidoidea. He had been criticised for many things, for example multiple-mounting of specimens on microscope slides, using single specimens to describe new genera and species, collecting from windows, brief descriptions, lack of diagrams and so on. He disliked multiple-mounting but this was forced upon him by economic circumstances and was mentioned in his letters to Heber Longman. Girault wrote on the other matters and his attitude to economic entomology in papers published towards the end of his life. The first quotation is from an address he wrote for the 7th International Congress of Entomology:

. . . At first all Science was pure Science. I mean all Science was pursued from the motive of curiosity and interest. Use was not the object at first . . .

And so it is right here that I desire to state the existence of grave anomalies in Science, in scientific work, in the generalissimo and guide of our new and future world.

We can now find, sans even looking, two kinds of Science. The division is so obvious that it is almost trite to state it. Nevertheless, it is what I am directing urgent attention to.

There is the general, thinking, free, wider, pure, upper, "inspired", spiritual, love-made, basic, inutile Science, pursued without reference to money-value; and the "special", easy, narrow, manual, lower, less pure, routine, wage-made, servile, utility or economic, applied Science. In general, the one is intellectual, Kantian or Spencerian, the other not. In one way both are the same since all knowledge is useful or potentially so. Nevertheless, in our world today the two divisions — original and non-original — are more or less sharply marked and have a profound bearing upon us as individuals and upon societies as wholes. And we find the reason for the division in the nature of the present ignorant organisms of Society.

The evidence of division is, as said, obvious. And we have the use of such terms as Biologist, Botanist, Scientist, Zoologist and Economic Biologist or Economic Botanist, Applied Scientist, Technologist and that latest term creepingly established amongst us, Technocrat. Are we botanists or entomologists — or technocrats? That is to say do we study plants or fossils or insects as a Science — or as an economist?

* Girault, 462: 439.

† Anon, 1941.

Do we deal in principles and laws or only in usefulness, clericalness and applications? Are we profound or superficial? We must be blood-letting thinkers to be scientists. . .

The conflict between the two does exist. The lower depends upon the upper. I am forcibly reminded of this by what goes on just now between some systematists (pure Science) and the Technocrat (frequently the latter is but a cowed man and a slave to money). I mean in Entomology.

The "economic man" uses the systematist for his own convenience, the effect being that his entire time is confined to a narrow field; for money reasons, he does not stop or slow nor widen; and so forth. He is therefore thwarted from his normal function; and so is complete knowledge. It is the Technocrat directing the Zoologist. The latter cannot free himself for his proper function (and may have to rebel, overwork; or and so forth). This is one of the abuses now prevalent, due to economic causes. And it makes perversion . . .*

The quotation to follow deals with his work:

These descriptions might be criticized upon the grounds of being only trifles, of their shortness and lack of drawings, upon being based on single specimens, on being from windows; and so forth. But the essential characters are in each, photographs would be useful could they be obtained, so would drawings; not, however, if the essential characters are not pointed out. Poverty has again cramped. As to being trifles: Science wants to know. And we must begin.

And as to being caught upon windows and being only single specimens: These are immaterial. A single specimen is as good as a dozen if no more can be obtained; and window frequently catches what cannot else be had . . .

Science wants to know as much as possible. Science is now very poor in equipment; and men . . .

These new species comprise all that I have been able to gather to date. The types are in the Queensland Museum at Brisbane. The species form a part of a monograph of the Chalcidoidea; and the descriptions are comparative or diagnostic, thus saving time and space and error. Fuller descriptions are in the work noticed. I have to deplore the lack of illustrations . . .†

Girault's work is remarkable not only for its volume (464 papers plus 9 in joint authorship and 2,483 pages of unpublished manuscript) but also because so much was achieved under such trying conditions: '. . . However, poverty cramps everything at present and I am fortunate to have accomplished so much . . .‡ He was constantly suffering economic hardship, often lacked the basic facilities for taxonomic work — library facilities, mounting equipment, a microscope. Because of the poor financial support for

taxonomy and lack of taxonomic positions he was forced to seek employment in economic entomology. These shortages of the basic taxonomic tools cannot be blamed upon the various institutions for which he worked since they employed him as an economic entomologist. One wonders what he would have been able to achieve today with more generous support of taxonomic work and with the necessary facilities. However, those who have tried to revise his work know that it is full of problems and his work has been a major stumbling-block in world chalcidoid taxonomy. Some of these problems were of his own making mostly because of his unsystematic approach to the work, but a good many were products of conditions out of his control. Perhaps the greatest criticism of his work is that he tried to achieve too much.

The checklist has been compiled to clear up the problems in Girault's work so that chalcidoid taxonomy may proceed more easily. This detailed biography has been written to promote a better understanding of Girault so that through this understanding will grow a greater tolerance and appreciation of his work.

I shall let Girault have the final word in the form of a quotation from the beginning of the mymarid section of his unpublished manuscript:

All this writing signifies so much pleasure whose cost was labour and self-control (if not penury and want?).

BIBLIOGRAPHY

The following list of references is divided into three sections: Girault, Girault and other authors, other authors. Several sources were used in composing the first two sections. Musgrave's bibliography** supplied most of Girault's papers up to 1930 on the Australian fauna. The *Zoological Record* for the years 1901 to 1942 allowed a check against Musgrave's listing and provided the post-1930 papers on the Australian fauna in addition to Girault's papers on the fauna of other regions. Because the *Zoological Record* was found to have gaps in its listings of Girault's papers the author indices of all journals in which his papers appeared were checked between the years 1901 to 1942. It is inevitable that there will be omissions not only because of the size and scope

* Girault, 454: 144-6.

† Girault, 452: 385.

‡ Girault, 452:382.

** Musgrave, 1932.

of the task but also because it was impossible to check each journal exhaustively even with the aid of other workers, e.g. a few papers were discovered quite by accident which were not listed in the author indices of their respective journals. Should the reader be aware of any omissions I would be grateful if these could be brought to my notice together with their dates of issue. Papers discovered in this way, if any, will be listed in a subsequent volume with an acknowledgment of sources, and annotated to fit into the scheme below.

The references in the Girault section are arranged chronologically according to the provisions of Article 21 of the Rules of Zoological Nomenclature except that no attempt was made to check the dates of issue against the actual dates of postage to subscribers. This may not be necessary for each of the 464 papers. Alterations to the chronology would only arise when problems with priority occur, and priority problems only become apparent during revisionary work. Therefore, this aspect is part of a much broader work best left in the hands of revisors. Meanwhile the bibliography which follows will function as intended — a preliminary framework for research.

In each case the date of issue as established above is placed at the end of each reference. Square brackets are used where part of the date of issue is assumed ([28] February 1914 — the last day of the month when only the month and year was given; [31 December] 1914 — the last day of the year when only the year is given) and for those cases where the year of issue is different from that printed on the volume or the relevant part of the volume (10 January [1915]). The date of issue for reference No. 348 is written ([1 November?] 1919). The copy of this volume in the Queensland Museum Library was apparently bound without the title pages for the various parts, and the editor of the journal, *Treubia*, was unable to assist with the correct date of issue. Asterisks are placed beside those references which will be used for the checklist to follow. Abbreviations used for the titles of publications follow those in the fourth edition of the *World list of scientific periodicals published in the years 1900–1960*.

GIRAULT

1901

1. Eggs of *Thridopteryx ephemeraeformis*. *Ent. News* **12**: 304 ([31] December 1901).

1903

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1904

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4. Miscellaneous notes on *Aphrophora parallela*, Say. *Can. Ent.* **36**: 44–8 (3 February 1904).
5. *Attelabus bipustulatus* Fab. (Coleoptera.) Theory of oviposition and construction of nidus; miscellaneous notes. *Ent. News* **15**: 189–93 ([30] June 1904).
6. *Dysphaga tenuipes* Hald. Brief notes; record of parasite. *Ent. News* **15**: 299–300 ([30] November 1904).
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1905

8. A bibliography of entomological glossaries. *Ent. News* **16**: 105–8 ([30] April 1905).
9. Notes on short experiments bearing on the relation of larval to adult legs. *Psyche, Camb.* **12**: 44–5 ([30] April 1905).
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11. Oviposition of *Bibio femorata*, Wied., and ovipositing females. *Can. Ent.* **37**: 322–30 (31 August 1905).
12. The bedbug, *Clinocoris* (= *Cimex* = *Acanthia* = *Klinophilos*) *lectularia* Linnaeus. Part I. Life history at Paris, Texas, with biological notes, and some considerations on the present state of our knowledge concerning it. *Psyche, Camb.* **12**: 61–74 ([31] August 1905).
13. *Anaphes conotracheli* species novem. An important egg-parasite. *Ent. News* **16**: 220 ([30] September 1905).
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1906

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19. The bedbug, *Cimex lectularius* Linnaeus. Pt. II. Critical remarks on its literature, with a history and bibliography of pathogenic relations. *Psyche, Camb.* 13: 42-58 ([30] June 1906).
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1907

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 233. New fragments on some well-known insects (Col., Orth., Hem.). *Ent. News* **26**: 53-6 (30 January 1915).

- 234*. Some chalcidoid Hymenoptera from North Queensland. [continued]. *Can. Ent.* **47**: 42-8 (11 February 1915).
 - 235*. A new species of the mymarid genus *Camptoptera* Foerster from Australia. *Can. Ent.* **47**: 65 (11 February 1915).
 236. Fragments on North American insects — VIII. *Ent. News* **26**: 127-33 (27 February 1915).
 237. Fragments on North American insects — IX. *Ent. News* **26**: 219-27 (30 April 1915).
 - 238*. Australian Hymenoptera Chalcidoidea — VII. The family Encyrtidae with descriptions of new genera and species. *Mem. Qd Mus.* **4**: 1-184 (4 June 1915).
 - 239*. Australian Hymenoptera Chalcidoidea — VIII. The family Miscogasteridae with descriptions of new genera and species. *Mem. Qd Mus.* **4**: 185-202 (4 June 1915).
 - 240*. Australian Hymenoptera Chalcidoidea — IX. The family Cleonymidae with descriptions of new genera and species. *Mem. Qd Mus.* **4**: 203-24 (4 June 1915).
 - 241*. Australian Hymenoptera Chalcidoidea — X. The family Eucharidae with descriptions of new genera and species. *Mem. Qd Mus.* **4**: 225-37 (4 June 1915).
 - 242*. Australian Hymenoptera Chalcidoidea — XI. The family Eurytomidae with descriptions of new genera and species. *Mem. Qd Mus.* **4**: 238-74 (4 June 1915).
 - 243*. Australian Hymenoptera Chalcidoidea — XII. The family Callimomidae with descriptions of new genera and species. *Mem. Qd Mus.* **4**: 275-309 (4 June 1915).
 - 244*. Australian Hymenoptera Chalcidoidea — XIII. The family Agaonidae with descriptions of four new genera, six new species, and one new variety. *Mem. Qd Mus.* **4**: 310-13 (4 June 1915).
 - 245*. Australian Hymenoptera Chalcidoidea — XIV. The family Chalcididae with descriptions of new genera and species. *Mem. Qd Mus.* **4**: 314-65 (4 June 1915).
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 247. A new genus and species of Trichogrammatidae from the Philippines. *Can. Ent.* **47**: 233-4 (16 July 1915).
 - 248*. A new species of *Pseudomphale* from Chile. *Can. Ent.* **47**: 234-5 (16 July 1915).
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 250. The urgent need of the economic entomologist. *Ent. News* **26**: 351-3 (30 September 1915).
 251. A few notes on Queensland insects. *Ent. News* **26**: 362 (30 September 1915).
 - 252*. Notes on some chalcidoid Hymenoptera from Java. *Ent. News* **26**: 365 (30 September 1915).
 253. New genera of chalcidoid Hymenoptera. *Jl N.Y. ent. Soc.* **23**: 165-73 ([30] September 1915).
 254. Notes on two South American parasitic Hymenoptera. *Entomologist* **48**: 213-4 ([30] September 1915).
 255. Three new British chalcidoid Hymenoptera: with notes. *Entomologist* **48**: 217-8 ([30] September 1915).
 256. Some new chalcidoid Hymenoptera from North and South America. *Ann. ent. Soc. Am.* **8**: 272-8 (11 October 1915).
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 258. A new trichogrammatid from Trinidad (Hym.). *Ent. News* **26**: 396 (30 October 1915).
 259. The occurrence of striking peculiarities of pattern in unrelated chalcidoid Hymenoptera. *Ent. News* **26**: 417-8 (30 October 1915).
 260. Notes on some parasites of sugar cane insects in Java with descriptions of new Hymenoptera Chalcidoidea. *Z. wiss. Insekt Biol.* **11**: 273-5 (20 November 1915).
 261. Notes on North American Mymaridae and Trichogrammatidae (Hym.). *Ent. News* **27**: 4-8 (31 December [1915]).
 262. Three new species of *Coccophagus*, family Encyrtidae (Hym.). *Ent. News* **27**: 33-4 (31 December [1915]).
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 266. A new genus of Eulophidae from the United States (Hym.). *Ent. News* **27**: 152 (31 March 1916).
 267. Proportion of the sexes in *Uloborus geniculatus* Walck., with a few notes (Arach., Aran.). *Ent. News* **27**: 181 (31 March 1916).
 268. Description of eleven new species of chalcid flies. [continued]. *Can. Ent.* **48**: 113-6 (10 April 1916).
 - 269*. New Encyrtidae from North America. *Psyche, Camb.* **23**: 41-50 ([30] April 1916).
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 - 272*. A new genus of Trichogrammatidae from Australia characterised by bearing a postmarginal vein. *Entomologist* **49**: 102-3 ([31] May 1916).
 273. Notes on described chalcidoid Hymenoptera with new genera and species. *Societas ent.* **31**: 35-8 (2 July 1916).

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 - 279*. Notes on described chalcidoid Hymenoptera with new genera and species. [continued?]. *Societas ent.* 31: 42–4 (18 August 1916).
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 282. Three new chalcid flies from California. *J. Ent. Zool.* 8: 119–22 ([30] September 1916).
 283. A new genus of ophioneurine Trichogrammatidae from Java. *Entomologist* 49: 199–200 ([30] September 1916).
 284. A remarkable new genus of Encyrtidae from the West Indies, bearing two ring-joints. *Jl N.Y. ent. Soc.* 24: 232–3 ([30] September 1916).
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 - 287*. New miscellaneous chalcidoid Hymenoptera with notes on described species. *Ann. ent. Soc. Am.* 9: 291–308 (14 October 1916).
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 289. New North American Hymenoptera of the family Eulophidae. *Proc. U.S. natn. Mus.* 51: 125–33 (28 October [1916]).
 290. Descriptiones Hymenopterorum Chalcidoidicorum variorum cum observationibus. II. *Ent. News* 27: 401–5 (31 October 1916).
 291. A new miscogasterid chalcid fly from Maryland. *Bull. Brooklyn ent. Soc.* (N.S.) 11: 87–8 ([31] October 1916).
 292. *Pirene marylandensis* n. sp. (chalcidoid Hymenoptera). *Bull. Brooklyn ent. Soc.* (N.S.) 11: 88 ([31] October 1916).
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 302. The occurrence of the genus *Monobaeus* Foerster in North America (Hym.). *Ent. News* 28: 106 (28 February 1917).
 303. Descriptiones Hymenopterorum Chalcidoidicorum cum observationibus. IV. *Entomologist* 50: 36–8 ([28] February 1917).
 - 303a. Some new Mymaridae and a new *Signiphora* in the collections of the Zoological Museum, Berlin. *Societas ent.* 32: 13–14 (2 March 1917).
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 - 305*. 'Speciosissima genera nova Eulophidorum.' pp. 1–4 (Girault: Washington) (10 March 1917).
 - 306*. 'New Javanese Hymenoptera.' pp. 1–12. (Girault: Washington) (28 March 1917).
 - 306a. Some new Mymaridae and a new *Signiphora* in the collections of the Zoological Museum, Berlin. *Societas ent.* 32: 17 (30 March 1917).
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 - 309*. 'New chalcid flies.' pp. 1–5. (Girault: Glenndale, Maryland) (30 March 1917).
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 - 311*. A chalcid parasite from the pink boll-worm, (Hymenoptera, Chalcididae). *Insecutor Inscit. menstr.* 5: 5–6 (6 April 1917).
 - 312*. Some new Australian chalcid-flies, mostly of the family Encyrtidae (Hymenoptera). *Insecutor inscit. menstr.* 5: 29–37 (6 April 1917).
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- 318*. 'Chalcidoidea nova Marilandensis.' pp.1–2 (Girault: Glenndale, Maryland) (21 May 1917).
319. New chalcidflies from Maryland, II (Hym.). *Ent. News* **28**: 255–7 (1 June 1917).
- 320*. New Australian chalcid-flies (Hymenoptera, Chalcididae). *Insecutor Inscit. menstr.* **5**: 92–6 (2 June 1917).
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325. A metallic species of *Cirrospilopsis* from Maryland (Hymenoptera Eulophidae). *Psyche, Camb.* **24**: 100 ([30] June 1917).
326. A new species of *Closterocerus* from California (Hymenoptera Eulophidae). *Psyche, Camb.* **24**: 101 ([30] June 1917).
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- 342*. 'North American Hymenoptera Elasmidae.' pp.1–4. (Girault: Sydney) (1 August 1918).
343. A new species of *Lepidiota* from northern Queensland. *Entomologist* **51**: 183 ([31] August 1918).
344. Cameron's Australian chalcid-flies. *Insecutor Inscit. menstr.* **6**: 117–8 (30 October 1918).
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- 348*. Javanese chalcid-flies. *Treubia* **1**: 53–9 ([1 November?] 1919).
- 349*. 'Hymenoptera Chalcidoidea nova Australiensis.' 3 pp. (Girault: Brisbane, Australia) (20 November 1919).
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- 367*. 'The true remedy for head lice. Dedication of a new animal to the quality of majesty and so forth.' 1p. (Girault: Brisbane, Q.) (20 November 1922).
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- 384*. Notes and descriptions of Australian chalcid-flies — III (Hymenoptera). *Insecutor Inscit. menstr.* **13**: 91–100 (15 May 1925).
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- 402*. A miscellany of new species of the lower Hymenoptera from Australia, with notes. *Insecutor Inscit. menstr.* **14**: 133–7 (8 November 1926).
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410. A new genus or subgenus of Thysanoptera. *Insecutor Inscit. menstr.* **14**: 188 (11 April 1927).
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- 422*. 'Some new hexapods stolen from authority.' 4pp. (Girault: Brisbane) (23 May 1928).
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- 429*. 'Description of a case of lunacy in *Homo* and of new six-legged articulates.' 4 pp. (Girault: Brisbane) (25 April 1929).
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- 432*. 'New pests from Australia, VII.' 3 pp. (Girault: Brisbane) (10 February 1930).

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- 436*. 'Hymenoptera, Thysanoptera nova Australiensis.' 2 pp. (Girault: Brisbane) (15 September 1931). **450***. Some new Australasian insects which are parasites (Hym. Chalcidoidea). *Revta Ent., Rio de J.* **8**: 80–9 (26 March 1938).
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- 439*. 'New lower Hymenoptera from Australia and India.' 6 pp. (Girault: Brisbane) (20 October 1932). **453***. Descriptions of some chalcid wasps. *Qd Nat.* **11**: 14–23 ([31] January 1939).
- 1933** **454.** On the two divisions of scientific work. *Verh. 7 internat. Kongr. Ent. Weimar* **1**: 144–6 ([31] March 1939).
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- 441*. 'Some beauties inhabitant not of the boudoirs of commerce but of nature's bosom — new insects.' 2 pp. (Girault: Brisbane) (22 November 1933). **456***. A new genus and species of Australian Pteromalidae. *N. Qd Nat.* **7**(58): 2 (1 June 1939).
- 1934** **457***. Five new generic names in the Chalcidoidea (Australia). *Ohio J. Sci.* **39**: 324–6 ([30] November 1939).
- 442*. 'Eucharitidae, Cynipidae, Proctotrypidae et Thysanoptera nova Australiensis.' 2 pp. (Girault: Brisbane) (20 February 1934). **1940**
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LOCALITIES

Localities of all specimens determined by Girault are listed and maps are included to show their positions. Each locality is listed with its state (and area within the state in the case of Queensland), latitude, longitude, numerical reference to one of the accompanying maps, and numerical reference to its position on the map. A

uniform scale is not used. The maps are intended to be diagrammatic, showing the area covered by Girault's taxonomic work and allowing each locality, even the more obscure ones, to be easily found using conventional, scaled, area maps.

Most localities have been fixed with certainty. The few that remain in doubt are listed separately at the end. Of these only one, Caramby, Victoria, is a type locality. In many cases the locality information on the labels proved imprecise. It has been possible, however, to pin-point the majority using information gathered from a detailed study of Girault's life and work. In those cases where map references could not be established, the map references for the centre of the general area, if known, are given, e.g. Yorke Peninsula map references are given for Carribie, Yorke Peninsula. Where the reverse happened, i.e., an area was used as the locality, the map references of the place for which the district was named are given, e.g., Nanango for Nanango District. Map references for portions of rivers are listed as those for the river, e.g., Williams River for Upper Williams River. In some cases it was difficult to decide whether a name meant a populated place or a homestead; often the choice was between several possibilities listed in gazeteers. When information from Girault's life and work was inadequate for precise determination, the populated place was chosen e.g. Millbrook. Where suburbs are given separate map references to those of their capital cities in gazeteers, these are used. Where separate map references could not be found, the suburbs are listed with the map references of their capital cities.

The maps show quite clearly that specimens available to Girault were predominantly from coastal or near coastal localities. Areas such as the Northern Territory and the great mass of Central Australia are poorly represented. Except for a few localities in New South Wales, e.g. Muswellbrook, Girault's own collecting activity was restricted to Queensland as can be seen from the numerous localities in this state. For this reason I divided this state into convenient zones (Fig. 1). Girault collected wherever and whenever possible. His collecting localities, therefore, reflect the areas in which he lived (suburbs of Brisbane, Capeville, Chatsworth, etc.) plus the extent of his travels in the service of the Bureau of Sugar Experimental Stations (1911–1914, 1918–1919) and Queensland Department of Agriculture and Stock (1923–1935). His travels in the service of these two organisations can be traced along railway routes radiating from the major coastal centres of Cairns, Townsville, Mackay, Rock-

hampton, Gympie and Brisbane. It has even been possible to trace the route that he travelled through New South Wales in 1914 on his way to Sydney where he and his family boarded the 'S.S. Sonoma' for the return journey to America. He stayed at hotels in Muswellbrook and Brooklyn, localities which appear in the list to follow. Similarly, major events in his life such as shop-keeping in Wynnum, poultry farming at Ipswich, and even the short period in Stanthorpe, where he joined his wife who had temporarily retired there with tuberculosis, are reflected as collecting localities.

Girault's activity in Queensland was supplemented, to a large degree, by material made available by Alan Dodd. The early material of Dodd was collected in North Queensland during his work with the Bureau of Sugar Experimental Stations. Dodd was Girault's assistant during the years 1912–1914 and continued with the Bureau, after Girault's departure in 1914, until 1921. From 1921 onwards Dodd was associated with Prickly Pear eradication in Queensland and was stationed in Brisbane. During this period his collecting covered Southern Queensland and Northern New South Wales around the Tweed River. Additional Queensland material came from Henry Hacker, the Queensland Museum Entomologist, and from other officers of the Queensland Department of Agriculture and Stock — W. A. T. Summerville, A. Brimblecombe, E. Jarvis, and H. Tryon among others.

Collections from outside Queensland came to Girault for determination from many sources. F. M. Littler, an accountant and amateur entomologist forwarded specimens to the Queensland Museum from Northern Tasmania around Launceston. G. H. H. Hardy, the Acting Curator of the Tasmanian Museum in Hobart exchanged material from Southern Tasmania, around Hobart, with the Queensland Museum. This chalcidoid material was made available to Girault, as was the Northern Territory material received on exchange by the Queensland Museum from G. F. Hill, Government Entomologist in that region. A small amount of material from Tasmania and the Northern Territory was amongst the collection forwarded by the South Australian Museum to Girault via the Queensland Museum. These specimens were collected by N. B. Tindale, Assistant Entomologist and A. M. Lea, Entomologist of the South Australian Museum. A small amount of Northern Territory material also came from the collections of the C.S.I.R.O. in Canberra and were a result of the efforts of T. G. Campbell, an officer with the C.S.I.R.O. Most

of the New South Wales material was collected by W. W. Froggatt who amongst his many positions was at one time Government Entomologist, Department of Agriculture of New South Wales. Froggatt also collected specimens from South Australia, Victoria and Queensland. He maintained a private collection, amongst which was the Girault determined material. His collection now resides in the Australian National Insect Collection, C.S.I.R.O., Canberra. F. E. Wilson, a private collector associated with the National Museum of Victoria provided Girault with most of the Victorian material, but some was collected by F. P. Spry, Entomologist at the National Museum of Victoria, and a small amount from Canterbury by an amateur Victorian collector, B. Blackbourn. Most of the Victorian material determined by Girault is in the National Museum of Victoria. Girault's access to South Australian material was via the museum of that state. It was collected by A. M. Lea and N. B. Tindale mentioned earlier, as well as J. G. O. Tepper, a collector for the South Australian Museum. Western Australia was relatively poorly collected for chalcidoids during Girault's life and remains so today. L. J. W. Newman, Entomologist, Western Australia Department of Agriculture provided some specimens as did A. Koeble and H. Compere, both Americans, who came to Western Australia, on separate occasions, to investigate insect enemies of citrus scale pests for introduction to California. Newman's material is at the Western Australia Department of Agriculture in Perth while the material collected by Koeble and Compere is in the U.S. National Museum, Washington, D.C. Koeble also collected in other Australian states and this material is in Washington. Newman collected some specimens in Timor and India. Girault had access to these and they are to be found with Newman's other material in Perth. A small number of Australian Capital Territory specimens were determined by Girault. These were collected by officers of the C.S.I.R.O. in Canberra e.g., A. L. Tonnoir and Miss L. Graham and most are to be found in the Australian National Insect Collection in Canberra.

The preceding discussion is but a brief resume of the sources from which Girault derived specimens for study. Despite his prodigious efforts in Australia there is still much more to be done and the accompanying maps show large areas not collected. Specialists who recently collected in Australia indicated that Girault has only treated a small part of our very rich fauna.

The list to follow is divided into Australian

localities (fixed with certainty), uncertain Australian localities, and non-Australian localities. Australian localities are those within Australian territorial waters, and Australia's external territories, e.g. Norfolk Island, are listed in the non-Australian section. The non-Australian localities are taken from specimens in Australian institutions and include external Australian territories. Most of these are in the Queensland Museum and are listed without map references. Abbreviations for the areas within Queensland, shown in Fig. 1, are: C.Q. = Central Queensland; ME.Q. = Mid East Queensland; NC.Q. = North Central Queensland; NE.Q. = North East Queensland; NW.Q. = North West Queensland; SC.Q. = South Central Queensland; SE.Q. = South East Queensland; SW.Q. = South West Queensland; WC.Q. = West Central Queensland.

Where a locality is either a suburb or a municipality within a capital city the first letter of the capital city is given in square brackets after the locality as follows:

[A] Adelaide	[M] Melbourne
[B] Brisbane	[P] Perth
[C] Canberra	[S] Sydney

AUSTRALIAN LOCALITIES

- Adelaide — S.Aust.; 34 56S, 138 36E; 10 (2).*
- Albury — N.S.W.; 36 05S, 146 55E; 8 (2).
- Alderley [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
- Aloomba — NE.Q.; 17 07S, 145 50E; 7 (1).
- Amamoor — SE.Q.; 26 21S, 152 41E; 6 (1).
- Annerley [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
- Aratula — SE.Q.; 27 59S, 152 32E; 6 (2).
- Ardmona — Vic.; 36 23S, 145 18E; 9 (1).
- Ardrossan — S.Aust.; 34 26S, 137 54E; 10 (1).
- Armada — W.Aust.; 32 09S, 116 00E; 4 (1).
- Armidale — N.S.W.; 30 31S, 151 39E; 8 (3).
- Ascot [B] — SE.Q.; 27 26S, 153 04E; 6 (15).
- Ashgrove [B] — SE.Q.; 27 27S, 153 02E; 6 (15).
- Atherton — NE.Q.; 17 16S, 145 29E; 7 (2).
- Ayr — NE.Q.; 19 35S, 147 24E; 5 (48).
- Babinda — NE.Q.; 17 21S, 145 55E; 7 (3).
- Bacchus Marsh — Vic.; 37 41S, 144 27E; 9 (2).
- Baileys Ck — W.Aust.; 28 37S, 123 03E; 4 (2).
- Bakerville — NE.Q.; 17 23S, 145 16E; 7 (4).
- Bald Hills [B] — SE.Q.; 27 19S, 153 01E; 6 (3).
- Ballarat — Vic.; 37 33S, 143 51E; 9 (3).
- Bamawm — Vic.; 36 17S, 144 37E; 9 (4).
- Bankstown [S] — N.S.W.; 33 55S, 151 02E; 8 (56).
- Banyo [B] — SE.Q.; 27 23S, 153 05E; 6 (15).
- Barellan — N.S.W.; 34 17S, 146 35E; 8 (4).
- Barellay — incorrect spelling for Barellan.

*Locality [City] — State; lat., long.; map (position, on map).

- Bayswater [M] — Vic.; 37 51S, 145 16E; 9 (30).
 Beaconsfield — Vic.; 38 03S, 145 22E; 9 (5).
 Beaudesert — SE.Q.; 27 59S, 152 59E; 6 (4).
 Beech Forest — Vic.; 38 38S, 143 34E; 9 (6).
 Beechmont — SE.Q.; 28 06S, 153 13E; 6 (5).
 Beenleigh — SE.Q.; 27 43S, 153 12E; 6 (6).
 Beerwah — SE.Q.; 26 51S, 152 58E; 6 (7).
 Belgrave — Vic.; 37 54S, 145 21E; 9 (7).
 Belmore [S] — N.S.W.; 32 25S, 147 20E; 8 (56).
 Benarkin — SE.Q.; 26 53S, 152 08E; 6 (8).
 Bendigo — Vic.; 36 46S, 144 16E; 9 (8).
 Berowra — N.S.W.; 33 38S, 151 09E; 8 (6).
 Berwick — Vic.; 38 02S, 145 21E; 9 (9).
 Beverley — W.Aust.; 32 07S, 116 55E; 4 (3).
 Biggenden — SE.Q.; 25 31S, 152 03E; 5 (1).
 Bilinga — SE.Q.; 28 10S, 153 31E; 6 (9).
 Biloela — SE.Q.; 24 25S, 150 30E; 5 (2).
 Biniguy — N.S.W.; 29 32S, 150 12E; 8 (7).
 Birkdale — SE.Q.; 27 29S, 153 13E; 6 (10).
 Blackall Rngs — SE.Q.; 26 42S, 152 53E; 6 (11).
 Blackbutt — SE.Q.; 26 53S, 152 06E; 6 (12).
 Black Mtn [C] — A.C.T.; 35 16S, 149 06E; 8 (1).
 Blakiston — S.Aust.; 35 03S, 138 53E; 10 (3).
 Blue Mtns — N.S.W.; 33 30S, 150 15E; 8 (8).
 Blundells [C] — A.C.T.; 35 20S, 149 10E; 8 (1).
 Blundells Camp — see Blundells.
 Boggabri — N.S.W.; 30 42S, 150 02E; 8 (9).
 Bogong High Plains — see Bogong Plains.
 Bogong Plains — Vic.; 36 55S, 147 13E; 9 (10).
 Borenore — N.S.W.; 33 15S, 148 58E; 8 (5).
 Boronia — Vic.; 37 52S, 145 17E; 9 (11).
 Botanic Gardens [S] — N.S.W.; 33 53S, 151 12E; 8 (56).
 Botany [S] — N.S.W.; 33 58S, 151 12E; 8 (56).
 Botany B. [S] — N.S.W.; 33 58S, 151 10E; 8 (10).
 Bowen — ME.Q.; 20 01S, 148 14E; 5 (33).
 Bowenville — SE.Q.; 27 19S, 151 29E; 6 (13).
 Brewarrina — N.S.W.; 29 57S, 146 52E; 8 (11).
 Bribie I. — SE.Q.; 27 00S, 153 07E; 6 (14).
 Bridgeport — incorrect spelling for Bridport.
 Bridport — Tas.; 41 00S, 147 24E; 2 (1).
 Bright — Vic.; 36 45S, 146 58E; 9 (12).
 Brighton [M] — Vic.; 37 55S, 145 00E; 9 (30).
 Brisbane — SE.Q.; 27 30S, 153 01E; 6 (15).
 Broadmeadows [M] — Vic.; 37 40S, 144 54E; 9 (30).
 Brocks Ck — N.T.; 13 28S, 131 25E; 3 (1).
 Brookfield [B] — SE.Q.; 27 30S, 152 54E; 6 (15).
 Brooklana — N.S.W.; 30 16S, 152 51E; 8 (12).
 Brooklyn — N.S.W.; 33 33S, 151 14E; 8 (13).
 Broome — W.Aust.; 17 58S, 122 14E; 3 (2).
 Browns R. — Tas.; 42 59S, 147 19E; 2 (2).
 Buderim — SE.Q.; 26 41S, 153 03E; 6 (16).
 Bundaberg — SE.Q.; 24 51S, 152 21E; 5 (3).
 Bungeworgorai — SC.Q.; 26 35S, 148 43E; 5 (73).
 Bunya Mtns — SE.Q.; 26 50S, 151 33E; 6 (17).
 Burketown — NW.Q.; 17 43S, 139 34E; 5 (70).
 Burnett Heads — SE.Q.; 24 46S, 152 24E; 5 (4).
 Burnett R. — SE.Q.; 24 46S, 152 25E; 5 (5).
 Burnie — Tas.; 41 04S, 145 55E; 2 (3).
 Burnside — N.T.; 13 28S, 131 25E; 3 (3).
 Buruda* [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Byfield — ME.Q.; 22 50S, 150 40E; 5 (34).
 Caboolture — SE.Q.; 27 05S, 152 57E; 6 (18).
 Cairns — NE.Q.; 16 55S, 145 46E; 7 (6).
 Caloundra — SE.Q.; 26 48S, 153 08E; 6 (19).
 Camden — N.S.W.; 34 03S, 150 42E; 8 (14).
 Canberra — A.C.T.; 35 20S, 149 10E; 8 (1).
 Cannon Hill [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Canterbury [M] — Vic.; 37 50S, 145 05E; 9 (30).
 Canungra — SE.Q.; 28 02S, 153 10E; 6 (20).
 Capella — ME.Q.; 23 05S, 148 01E; 5 (35).
 Cape R. — C.Q.; 20 49S, 146 51E; 5 (75).
 Capeville — C.Q.; 20 27S, 145 22E; 5 (76).
 Cape York — NE.Q.; 10 43S, 142 28E; 5 (49).
 Cape York Pen. — NE.Q.; 12 00S, 142 30E; 5 (50).
 Carnarvon — W. Aust.; 24 52S, 113 38E; 4 (4).
 Carrathool — N.S.W.; 34 25S, 145 26E; 8 (15).
 Carribie, Yorke Pen. — S.Aust.; 35 00S, 137 30E; 10 (4).
 Caulfield [M] — Vic.; 37 53S, 145 01E; 9 (30).
 Cedar Ck — SE.Q.; 27 50S, 153 10E; 6 (21).
 Chatsworth — SE.Q.; 26 09S, 152 37E; 6 (22).
 Cheltenham [M] — Vic.; 37 58S, 145 04E; 9 (30).
 Childers — SE.Q.; 25 15S, 152 16E; 5 (6).
 Chinchilla — SE.Q.; 26 45S, 150 38E; 5 (7).
 Chindera — incorrect spelling for Chinderah.
 Chinderah — N.S.W.; 28 14S, 153 33E; 8 (16).
 Clayfield [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Cloncurry — WC.Q.; 20 42S, 140 30E; 5 (72).
 Cobar — N.S.W.; 31 30S, 145 49E; 8 (17).
 Condong — N.S.W.; 28 18S, 153 26E; 8 (18).
 Condova = Condong.
 Conondale — SE.Q.; 26 44S, 152 43E; 6 (23).
 Cooks R. — N.S.W.; 33 57S, 151 11E; 8 (19).
 Cooktown — NE.Q.; 15 28S, 145 15E; 5 (51).
 Cooloolabin — SE.Q.; 26 33S, 152 53E; 6 (24).
 Coopers Plains [B] — SE.Q.; 27 34S, 153 02E; 6 (15).
 Cooran — SE.Q.; 26 20S, 152 50E; 6 (25).
 Cooroy — SE.Q.; 26 25S, 152 55E; 6 (26).
 Coorparoo [B] — SE.Q.; 27 30S, 153 03E; 6 (15).
 Copmanhurst — N.S.W.; 29 36S, 152 47E; 8 (20).
 Coree Ck — A.C.T.; 35 20S, 148 53E; 8 (1).
 Corinda [B] — SE.Q.; 27 32S, 152 59E; 6 (15).
 Cornwallis I. = Mt. Cornwallis, Dauan I. — Torres Strait; 9 25S, 142 32E; 5 (52).
 Cotter R. — A.C.T.; 35 19S, 148 57E; 8 (1).
 Cradle Mtn — Tas.; 41 41S, 145 57E; 2 (4).
 Croydon [S] — N.S.W.; 33 53S, 151 12E; 8 (56).
 Dagun — SE.Q.; 26 19S, 152 41E; 6 (27).
 Dalby — SE.Q.; 27 11S, 151 16E; 6 (28).
 Dalveen — SE.Q.; 28 29S, 151 59E; 6 (29).
 Daly R. — N.T.; 13 20S, 130 19E; 3 (4).
 Damawn = Bamawm

* Old name for area around Doboy Creek, Brisbane.

- Dandenong — Vic.; 37 59S, 145 12E; 9 (13).
 Dandenong Mtns — see Dandenong.
 Dandenong Rngs — see Dandenong.
 Daradgee — NE.Q.; 17 29S, 146 00E; 7 (7).
 Darling I. [S] — N.S.W.; 33 53S, 151 12E; 8 (56).
 Darlington — W.Aust.; 31 55S, 116 05E; 4 (5).
 Darra [B] — SE.Q.; 27 34S, 152 58E; 6 (15).
 Darwin — N.T.; 12 28S, 130 50E; 3 (5).
 Dawson Vale — SE.Q.; 25 33S, 150 14E; 5 (8).
 Dayboro — SE.Q.; 27 11S, 152 50E; 6 (30).
 Deception Bay — SE.Q.; 27 12S, 153 02E; 6 (31).
 Deeral — NE.Q.; 17 13S, 145 55E; 7 (8).
 Dorrigo — N.S.W.; 30 20S, 152 42E; 8 (21).
 Double I. — NE.Q.; 16 43S, 145 41E; 7 (9).
 Duaringa — SE.Q.; 23 44S, 149 40E; 5 (9).
 Dubbo — N.S.W.; 32 15S, 148 37E; 8 (22).
 Dugandan — SE.Q.; 28 01S, 152 41E; 6 (32).
 Dunk I. — NE.Q.; 17 57S, 146 10E; 5 (53).
- Eastwood [S] — N.S.W.; 33 53S, 151 12E; 8 (56).
 Echuca — Vic.; 36 08S, 144 45E; 9 (14).
 Edge Hill, Cairns — NE.Q.; 16 54S, 145 45E; 7 (6).
 Eidsvold — SE.Q.; 25 22S, 151 08E; 5 (10).
 Eltham [M] — Vic.; 37 44S, 145 09E; 9 (30).
 Emerald — C.Q.; 23 32S, 148 10E; 5 (77).
 Endeavour R. — NE.Q.; 15 28S, 145 15E; 5 (54).
 Enoggera [B] — SE.Q.; 27 25S, 153 00E; 6 (15).
 Esk — SE.Q.; 27 14S, 152 25E; 6 (33).
 Eungai — N.S.W.; 30 51S, 152 54E; 8 (23).
- Fern Tree Gully — Vic.; 37 53S, 145 18E; 9 (15).
 Fishery Ck — NE.Q.; 17 11S, 145 53E; 7 (11).
 Flaxton — SE.Q.; 26 40S, 152 53E; 6 (34).
 Flemington [S] — N.S.W.; 33 52S, 151 04E; 8 (56).
 Forbes — N.S.W.; 33 23S, 148 01E; 8 (24).
 Forest Hill — SE.Q.; 27 36S, 152 21E; 6 (35).
 Forrest [C] — A.C.T.; 35 20S, 149 10E; 8 (1).
 Freshwater — NE.Q.; 16 53S, 145 43E; 7 (12).
- Gatton — SE.Q.; 27 33S, 152 17E; 6 (36).
 Gatton College [Lawes Siding] — SE.Q.; 27 34S, 152 19E; 6 (37).
 Gawler — S. Aust.; 34 36S, 138 44E; 10 (5).
 Gayndah — SE.Q.; 25 38S, 151 36E; 5 (11).
 Geelong — Vic.; 38 09S, 144 21E; 9 (16).
 Georgetown — Tas.; 41 06S, 146 50E; 2 (5).
 Gilgandra — N.S.W.; 31 43S, 148 39E; 8 (25).
 Gippsland — Vic.; 37 30S, 147 16E; 9 (17).
 Gisborne — Vic.; 37 29S, 144 35E; 9 (18).
 Glass House Mtns — SE.Q.; 26 54S, 152 55E; 6 (38).
 Glenbrook — N.S.W.; 33 46S, 150 37E; 8 (26).
 Glenfield [S] — N.S.W.; 33 58S, 150 54E; 8 (56).
 Glen Innes — N.S.W.; 29 44S, 151 44E; 8 (27).
 Gogango — SE.Q.; 23 40S, 150 02E; 5 (12).
 Gold Ck — SE.Q.; 27 29S, 152 54E; 6 (39).
 Goodna — SE.Q.; 27 37S, 152 54E; 6 (40).
 Goondi — NE.Q.; 17 31S, 146 00E; 7 (13).
 Goondiwindi — SE.Q.; 28 33S, 150 19E; 5 (13).
 Gordonvale — NE.Q.; 17 05S, 145 47E; 7 (14).
- Gosford — N.S.W.; 33 26S, 151 21E; 8 (28).
 Gosnells — W. Aust.; 32 05S, 116 00E; 4 (6).
 Goulburn Valley — Vic.; 36 06S, 144 50E; 9 (19).
 Gov. Domain [M] — Vic.; 37 50S, 145 00E; 9 (30).
 Grafton — N.S.W.; 29 41S, 152 56E; 8 (29).
 Grampians — Vic.; 37 02S, 142 30E; 9 (20).
 Grandchester — SE.Q.; 27 40S, 152 28E; 6 (41).
 Grange [A] — S. Aust.; 34 56S, 138 36E; 10 (2).
 Grantville — Vic.; 38 24S, 145 32E; 9 (21).
 Gravesend — N.S.W.; 29 35S, 150 19E; 8 (30).
 Greenhills — NE.Q.; 16 51S, 145 50E; 7 (15).
 Groote Eylandt — N.T.; 14 00S, 136 40E; 3 (6).
 Gulugaba = Guluguba
 Guluguba — SE.Q.; 26 16S, 150 03E; 5 (14).
 Gurulmundi — SE.Q.; 26 25S, 150 03E; 5 (15).
 Gympie — SE.Q.; 26 11S, 152 40E; 6 (42).
- Halifax — NE.Q.; 18 35S, 146 17E; 5 (55).
 Hambledon Junction — NE.Q.; 17 01S, 145 44E; 7 (16).
 Hamilton — Vic.; 37 45S, 142 02E; 9 (22).
 Harveys Ck — NE.Q.; 17 16S, 145 55E; 7 (17).
 Hattah — Vic.; 34 46S, 142 17E; 9 (23).
 Hawthorn — Vic.; 37 50S, 145 02E; 9 (30).
 Healesville — Vic.; 37 39S, 145 31E; 9 (24).
 Heathcote — N.S.W.; 34 05S, 151 01E; 8 (31).
 Herbert R. — NE.Q.; 18 32S, 146 17E; 5 (56).
 Herberton — NE.Q.; 17 24S, 145 23E; 7 (18).
 Hillwood — Tas.; 41 14S, 147 00E; 2 (6).
 Hobart — Tas.; 42 55S, 147 20E; 2 (7).
 Horn I. — Torres Strait; 10 37S, 142 17E; 5 (57).
 Hornsby [S] — N.S.W.; 33 42S, 151 06E; 8 (56).
 Hughenden — C.Q.; 20 51S, 144 12E; 5 (78).
 Hughes — S. Aust.; 30 42S, 129 31E; 10 (6).
- Imbil — SE.Q.; 26 27S, 152 41E; 6 (43).
 Indooroopilly [B] — SE.Q.; 27 30S, 152 58E; 6 (15).
 Indurupilli = Indooroopilly.
 Ingham — NE.Q.; 18 39S, 146 10E; 5 (58).
 Inglewood — SE.Q.; 28 25S, 151 05E; 5 (16).
 Inkerman — NE.Q.; 19 45S, 147 29E; 5 (59).
 Inkerman Mtn — NE.Q.; 19 45S, 147 30E; 5 (60).
 Innisfail — NE.Q.; 17 32S, 146 02E; 7 (5).
 Inverloch — Vic.; 38 38S, 145 43E; 9 (25).
 Ipswich — SE.Q.; 27 37S, 152 46E; 6 (44).
 Irvinebank — NE.Q.; 17 26S, 145 13E; 7 (19).
- Jandowae — SE.Q.; 26 47S, 151 06E; 5 (17).
 Juandah — SE.Q.; 26 04S, 149 55E; 5 (18).
- Kairi — NE.Q.; 17 13S, 145 33E; 7 (20).
 Kamma — NE.Q.; 17 03S, 145 46E; 7 (21).
 Kangaroo I. — S. Aust.; 35 50S, 137 06E; 10 (7).
 Katoomba — N.S.W.; 33 42S, 150 18E; 8 (32).
 Kelvin Grove [B] — SE.Q.; 27 27S, 153 01E; 6 (15).
 Kewell — Vic.; 36 30S, 142 25E; 9 (26).
 Kiata — Vic.; 36 22S, 141 48E; 9 (27).
 Killara [S] — N.S.W.; 33 53S, 151 12E; 8 (56).

- King George Snd — W. Aust.; 35 03S, 118 00E; 4 (7).
 King I. — Bass Strait; 39 50S, 144 00E; 2 (8).
 Kinglake — Vic.; 37 31S, 145 21E; 9 (28).
 Kings Park [P] — W. Aust.; 31 58S, 115 50E; 4 (9).
 Kingston — SE.Q.; 27 40S, 153 07E; 6 (45).
 Koumala — ME.Q.; 21 37S, 149 15E; 5 (36).
 Kuranda — NE.Q.; 16 49S, 145 39E; 7 (22).
 Kuttatbul — ME.Q.; 21 02S, 148 54E; 5 (37).
 Lagoon Pocket — SE.Q.; 26 16S, 152 40E; 6 (46).
 Laidley — SE.Q.; 27 38S, 152 23E; 6 (47).
 Launceston — Tas.; 41 25S, 147 08E; 2 (10).
 Lawson — N.S.W.; 33 43S, 150 26E; 8 (33).
 Leeton — N.S.W.; 34 34S, 146 24E; 8 (34).
 Leets Vale — N.S.W.; 33 26S, 150 57E; 8 (35).
 Lilydale — Vic.; 37 45S, 145 21E; 9 (29).
 Lindisfarne — Tas.; 42 50S, 147 21E; 2 (9).
 Linville — SE.Q.; 26 52S, 152 17E; 6 (48).
 Litchfield [Hmsd] — N.T.; 13 31S, 130 35E; 3 (7).
 Little Mulgrave R. — NE.Q.; 17 08S, 145 44E; 7 (23).
 Liverpool [S] — N.S.W.; 33 54S, 150 56E; 8 (56).
 Loganlea — SE.Q.; 27 40S, 153 08E; 6 (49).
 Longreach — C.Q.; 23 27S, 144 15E; 5 (79).
 Lota [B] — SE.Q.; 27 28S, 153 11E; 6 (15).
 Lucindale — S. Aust.; 36 59S, 140 22E; 10 (8).
 Mackay — ME.Q.; 21 09S, 149 12E; 5 (38).
 Maclean — N.S.W.; 29 28S, 153 13E; 8 (36).
 Magnetic I. — NE.Q.; 19 08S, 146 50E; 5 (61).
 Malanda — NE.Q.; 17 21S, 145 36E; 7 (24).
 Maleny — SE.Q.; 26 45S, 152 51E; 6 (50).
 Malvern [M] — Vic.; 37 52S, 145 02E; 9 (30).
 Mangalore — Tas.; 42 39S, 147 14E; 2 (11).
 Manly [S] — N.S.W.; 33 48S, 151 17E; 8 (56).
 Manumbar — SE.Q.; 26 24S, 152 17E; 6 (51).
 Mapleton — SE.Q.; 26 38S, 152 52E; 6 (52).
 Mareeba — NE.Q.; 17 00S, 145 26E; 7 (25).
 Marsfield [S] — N.S.W.; 33 53S, 151 12E; 8 (56).
 Maryborough — SE.Q.; 25 32S, 152 42E; 5 (19).
 Meadows — S. Aust.; 35 11S, 138 45E; 10 (9).
 Meerawa — NE.Q.; 17 09S, 145 52E; 7 (26).
 Melbourne — Vic.; 37 50S, 145 00E; 9 (30).
 Melrose — S. Aust.; 32 49S, 138 11E; 10 (10).
 Melton [Hmsd] — SC.Q.; 23 32S, 146 49E; 5 (81).
 Melville I. — N.T.; 11 40S, 131 00E; 3 (8).
 Meringa — NE.Q.; 17 05S, 145 47E; 7 (27).
 Middle Plane Ck, Sarina — ME.Q.; 21 26S, 149 13E; 5 (39).
 Miles — SE.Q.; 26 40S, 150 11E; 5 (20).
 Millbrook — Vic.; 37 35S, 144 03E; 9 (31).
 Millgrove — Vic.; 37 46S, 145 39E; 9 (32).
 Miriam Vale — SE.Q.; 24 19S, 151 33E; 5 (21).
 Mittagong — N.S.W.; 34 27S, 150 27E; 8 (37).
 Moggill [B] — SE.Q.; 27 35S, 152 52E; 6 (15).
 Molonglo R. — A.C.T.; 35 15S, 148 58E; 8 (1).
 Monaro — N.S.W.; 36 22S, 149 03E; 8 (38).
 Monbulk — Vic.; 37 53S, 145 24E; 9 (33).
 Montville — SE.Q.; 26 41S, 152 53E; 6 (53).
 Moolaba — NE.Q.; 17 21S, 145 55E; 7 (28).
 Mooropna — Vic.; 36 24S, 145 21E; 9 (34).
 Mordialloc [M] — Vic.; 38 00S, 145 05E; 9 (30).
 Moree — N.S.W.; 29 28S, 149 51E; 8 (39).
 Moreton I. — SE.Q.; 27 10S, 153 25E; 6 (54).
 Morningside [B] — SE.Q.; 27 29S, 153 08E; 6 (15).
 Morpeth — N.S.W.; 32 44S, 151 38E; 8 (40).
 Mossman — NE.Q.; 16 28S, 145 22E; 7 (29).
 Mt Arthur — Tas.; 41 16S, 147 17E; 2 (12).
 Mt Cootha = Mt Coot-tha
 Mt Coot-tha — SE.Q.; 27 29S, 152 58E; 6 (55).
 Mt Druitt — N.S.W.; 33 46S, 150 49E; 8 (41).
 Mt Edwards — SE.Q.; 28 01S, 152 31E; 6 (56).
 Mt Fainter — Vic.; 36 52S, 147 11E; 9 (35).
 Mt Gipps — SE.Q.; 28 10S, 153 00E; 6 (57).
 Mt Glorious — SE.Q.; 27 20S, 152 46E; 6 (58).
 Mt Gravatt [B] — SE.Q.; 27 32S, 153 05E; 6 (15).
 Mt Kosciusko — N.S.W.; 36 27S, 148 16E; 8 (42).
 Mt Larcom — SE.Q.; 23 49S, 150 59E; 5 (22).
 Mt Lofty — S. Aust.; 35 00S, 138 42E; 10 (11).
 Mt Mee — SE.Q.; 27 05S, 152 46E; 6 (59).
 Mt Pleasant — S. Aust.; 34 47S, 139 02E; 10 (12).
 Mt Pyramid — NE.Q.; 17 06S, 145 48E; 7 (30).
 Mt Sophia — NE.Q.; 17 10S, 145 52E; 7 (31).
 Mt Tambourine — SE.Q.; 27 58S, 153 12E; 6 (60).
 Mt Wellington — Tas.; 42 54S, 147 14E; 2 (13).
 Mulgowie — SE.Q.; 27 44S, 152 22E; 6 (61).
 Mulgrave R. — NE.Q.; 17 13S, 145 58E; 7 (34).
 Mulgrave Mill, Nelson — NE.Q.; 17 05S, 145 47E; 7 (32).
 Mulgrave Sugar Mill — see Mulgrave Mill.
 Mullewa — W. Aust.; 28 32S, 115 31E; 4 (8).
 Mundubbera — SE.Q.; 25 36S, 151 18E; 5 (23).
 Murat Bay — S. Aust.; 32 07S, 133 36E; 10 (23).
 Murarrie [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Murray Bridge — S. Aust.; 35 07S, 139 16E; 10 (13).
 Murray I. — Torres Strait; 9 55S, 144 05E; 5 (62).
 Murwillumbah — N.S.W.; 28 19S, 153 24E; 8 (43).
 Muswellbrook — N.S.W.; 32 16S, 150 54E; 8 (44).
 Nambour — SE.Q.; 26 38S, 152 57E; 6 (62).
 Nanango dist. — SE.Q.; 26 40S, 152 00E; 6 (63).
 Narrabri — N.S.W.; 30 19S, 149 47E; 8 (45).
 National Park [Lamington National Park] — SE.Q.; 28 16S, 153 08E; 6 (64).
 National Park [Royal, Sydney] — N.S.W.; 33 53S, 151 12E; 8 (56).
 Nelson=Gordonvale.
 Nerang — SE.Q.; 27 59S, 153 20E; 6 (65).
 Newcastle — N.S.W.; 32 55S, 151 45E; 8 (46).
 Noble Park — Vic.; 37 58S, 145 10E; 9 (36).
 Normanby [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Norman Park [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 North Pine R. — SE.Q.; 27 17S, 153 04E; 6 (66).
 Norwood [A] — S. Aust.; 34 55S, 138 39E; 10 (2).
 Norwood Gardens — see Norwood.

- Nudgee [B] — SE.Q.; 27 22S, 153 05E; 6 (15).
 Nundah [B] — SE.Q.; 27 25S, 153 03E; 6 (15).
 Nurseries [C] — A.C.T.; 35 20S, 149 10E; 8 (1).
 Nyindurupilli=Indooroopilly.
- Oakleigh [M] — Vic.; 37 54S, 145 06E; 9 (30).
 Ocean Grove — Vic.; 38 16S, 144 32E; 9 (37).
 Ooldea — S. Aust.; 30 27S, 131 50E; 10 (14).
 Ourimbah — N.S.W.; 33 22S, 151 26E; 8 (47).
 Owieandana, Nth Flinders Rngs — S. Aust.; 30 27S, 138 57E; 10 (15).
 Oxley [B] — SE.Q.; 27 33S, 152 59E; 6 (15).
- Pakenham — Vic.; 38 04S, 145 29E; 9 (38).
 Pallamallawa — N.S.W.; 29 28S, 150 08E; 8 (48).
 Palm I. — NE.Q.; 18 43S, 146 37E; 5 (63).
 Palmwoods — SE.Q.; 26 41S, 152 58E; 6 (67).
 Parachilna — S. Aust.; 31 08S, 138 23E; 10 (16).
 Parramatta — N.S.W.; 33 49S, 151 00E; 8 (56).
 Patrick R. — see Saint Patrick R.
 Peel I. — SE.Q.; 27 30S, 153 22E; 6 (68).
 Pentland — C.Q.; 20 32S, 145 24E; 5 (80).
 Perth — W. Aust.; 31 56S, 115 50E; 4 (9).
 Petrie — SE.Q.; 27 16S, 152 59E; 6 (69).
 Philpott Ck — SE.Q.; 25 36S, 151 22E; 5 (24).
 Pialba — SE.Q.; 25 18S, 152 50E; 5 (25).
 Pinkenba [B] — SE.Q.; 27 26S, 153 07E; 6 (15).
 Pioneer R. — ME.Q.; 21 09S, 149 12E; 5 (40).
 Pitt Water — N.S.W.; 33 37S, 151 18E; 8 (49).
 Pomona — SE.Q.; 26 22S, 152 52E; 6 (70).
 Port Augusta — S. Aust.; 32 30S, 137 46E; 10 (17).
 Port Darwin — N.T.; 12 28S, 130 50E; 3 (9).
 Port Douglas — NE.Q.; 16 29S, 145 28E; 7 (36).
 Portland — Vic.; 38 20S, 141 36E; 9 (39).
 Port Lincoln — S. Aust.; 34 44S, 135 52E; 10 (18).
 Proserpine — ME.Q.; 20 25S, 148 35E; 5 (41).
 Purnong — S. Aust.; 34 52S, 139 37E; 10 (19).
- Queanbeyan — N.S.W.; 35 21S, 149 14E; 8 (50).
 Quingilli — NE.Q.; 17 09S, 145 51E; 7 (37).
- Raby Bay — SE.Q.; 27 32S, 153 16E; 6 (71).
 Raglan — SE.Q.; 23 43S, 150 49E; 5 (26).
 Ravenshoe — NE.Q.; 17 38S, 145 29E; 7 (38).
 Redbank — SE.Q.; 27 36S, 152 52E; 6 (72).
 Redbank Plains — SE.Q.; see Redbank.
 Redland Bay — SE.Q.; 27 37S, 153 19E; 6 (73).
 Richmond R. — N.S.W.; 28 53S, 153 35E; 8 (51).
 Ringwood — Vic.; 37 49S, 145 14E; 9 (40).
 Ripple Ck — NE.Q.; 18 35S, 146 08E; 5 (64).
 Riverview — SE.Q.; 27 36S, 152 51E; 6 (74).
 Rockhampton — ME.Q.; 23 23S, 150 30E; 5 (42).
 Roma — SE.Q.; 26 35S, 148 47E; 5 (27).
 Roper R. — N.T.; 14 43S, 135 27E; 3 (10).
 Roseville [S] — N.S.W.; 33 53S, 151 12E; 8 (56).
 Rosewood — SE.Q.; 27 38S, 152 35E; 6 (75).
 Rossville — NE.Q.; 15 40S, 145 16E; 5 (65).
- Saint Patrick R. — Tas.; 41 28S, 147 21E; 2 (14).
 Salisbury [B] — SE.Q.; 27 33S, 153 02E; 6 (15).
- Samford — SE.Q.; 27 22S, 152 53E; 6 (76).
 Samson Vale — SE.Q.; 27 16S, 152 51E; 6 (77).
 Sandgate — SE.Q.; 27 20S, 153 05E; 6 (78).
 Sandringham [M] — Vic.; 37 57S, 145 00E; 9 (30).
 Sarina — ME.Q.; 21 26S, 149 13E; 5 (43).
 Scone — N.S.W.; 32 05S, 150 51E; 8 (52).
 Scottsdale — Tas.; 41 09S, 147 31E; 2 (15).
 Sea Lake — Vic.; 35 29S, 142 50E; 9 (41).
 Seville — Vic.; 37 46S, 145 28E; 9 (42).
 Seymour — NE.Q.; 18 34S, 146 14E; 5 (66).
 Sherwood [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Snake I. — Vic.; 38 46S, 146 32E; 9 (43).
 Snowy R. — N.S.W.; 37 48S, 148 32E; 8 (53).
 South Brighton [M] — Vic.; 37 55S, 145 00E; 9 (30).
 South [ern] Cross — W. Aust.; 31 13S, 119 19E; 4 (11).
 Southport — SE.Q.; 27 58S, 153 24E; 6 (79).
 Stanthorpe — SE.Q.; 28 40S, 151 57E; 6 (80).
 Stanwell Park — N.S.W.; 34 14S, 150 59E; 8 (54).
 Stapleton — N.T.; 13 10S, 131 03E; 3 (11).
 Stapylton — SE.Q.; 27 44S, 153 14E; 6 (81).
 Stewarts Ck [Hmsd] — SC.Q.; 26 18S, 148 28E; 5 (74).
 Stone I. — ME.Q.; 20 03S, 148 16E; 5 (44).
 Stradbroke I. — SE.Q.; 27 35S, 153 28E; 6 (82).
 Strahan — Tas.; 42 09S, 145 20E; 2 (16).
 Studley Park [M] — Vic.; 37 50S, 145 00E; 9 (30).
 Styx R. — N.S.W.; 30 42S, 152 03E; 8 (55).
 Sunnybank [B] — SE.Q.; 27 35S, 153 03E; 6 (15).
 Swan Hill — Vic.; 35 21S, 143 34E; 9 (44).
 Swan R. — W. Aust.; 32 03S, 115 45E; 4 (10).
 Swansea — Tas.; 42 08S, 148 04E; 2 (17).
 Sydney — N.S.W.; 33 53S, 151 12E; 8 (56).
- Tableland [Atherton] — NE.Q.; 17 00S, 145 00E; 7 (39).
 Tambourine — SE.Q.; 27 53S, 153 08E; 6 (83).
 Tambourine Mtn — see Mt Tambourine.
 Tara — SE.Q.; 27 17S, 150 28E; 5 (28).
 Tarcoola — S.Aust.; 30 41S, 134 33E; 10 (20).
 Taringa [B] — SE.Q.; 27 30S, 152 59E; 6 (15).
 Taroom — SE.Q.; 25 39S, 149 48E; 5 (29).
 Tawonga — Vic.; 36 38S, 147 06E; 9 (45).
 Teneral, Mareeba — NE.Q.; 17 00S, 145 26E; 7 (40).
 Teronga=Yeronga.
 Tewantin — SE.Q.; 26 23S, 153 02E; 6 (85).
 The Caves — ME.Q.; 23 11S, 150 28E; 5 (45).
 The Grange [A] — S.Aust.; 34 56S, 138 36E; 10 (2).
 Thredbo — N.S.W.; 36 30S, 148 19E; 8 (57).
 Thredbo R. — N.S.W.; 36 21S, 148 36E; 8 (58).
 Thursday I. — Torres Strait; 10 35S, 142 13E; 5 (67).
 Tiaro — SE.Q.; 25 44S, 152 35E 5 (30).
 Timboon — Vic.; 38 29S, 142 59E; 9 (46).
 Tingalpa [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Tingoorra — SE.Q.; 26 22S, 151 49E; 6 (86).
 Tintinara — S. Aust.; 35 54S, 140 03E; 10 (21).

Tolga — NE.Q.; 17 14S, 145 29E; 7 (41).
 Tomingley — N.S.W.; 32 34S, 148 14E; 8 (59).
 Toohey's Hill [B] — SE.Q.; 27 30S, 153 01E; 6 (15).
 Tooloom — N.S.W.; 28 37S, 152 25E; 8 (60).
 Toowong [B] — SE.Q.; 27 29S, 152 59E; 6 (15).
 Toowoomba — SE.Q.; 27 33S, 151 58E; 6 (87).
 Townsville — NE.Q.; 19 15S, 146 48E; 5 (68).
 Trangie — N.S.W.; 32 02S, 147 59E; 8 (61).
 Triabunna — Tas.; 42 30S, 147 54E; 2 (18).
 Tumoulin — NE.Q.; 17 34S, 145 28E; 7 (42).
 Turallin — SE.Q.; 27 50S, 151 13E; 6 (88).
 Turn-off Lagoons [Hmsd] — NW.Q.; 17 43S, 139 34E; 5 (71).
 Tweed Heads — N.S.W.; 28 11S, 153 33E; 8 (62).
 Tweed R. — N.S.W.; 28 11S, 153 34E; 8 (63).

Upper Brookfield [B] — SE.Q.; 27 28S, 152 52E; 6 (15).
 Upper Mulgrave R. — see Mulgrave R.
 Upper Tweed R. — see Tweed R.
 Upper Williams R. — N.S.W.; 32 45S, 151 45E; 8 (64).
 Uralla — N.S.W.; 30 39S, 151 30E; 8 (66).

Vernor — SE.Q.; 27 28S, 152 37E; 6 (89).
 Victoria Park [B] — SE.Q.; 27 27S, 153 01E; 6 (15).
 Victoria Rng. — Vic.; 37 20S, 142 18E; 9 (47).
 Vivonne B. — S. Aust.; 36 00S, 137 11E; 10 (22).

Wahroonga [S] — N.S.W.; 33 43S, 151 07E; 8 (56).
 Walhalla — Vic.; 37 57S, 146 27E; 9 (48).
 Wallumbilla — SE.Q.; 26 36S, 149 11E; 5 (31).
 Waratah — Tas.; 41 27S, 145 32E; 2 (19).
 Warburton — Vic.; 37 45S, 145 41E; 9 (49).
 Warraba* — SE.Q.; 27 05S, 152 57E 6 (18).
 Warragul — Vic.; 38 10S, 145 56E; 9 (50).
 Warrah — N.S.W.; 31 39S, 150 39E; 8 (68).
 Warrandyte — Vic.; 37 45S, 145 14E; 9 (51).
 Watsonville — NE.Q.; 17 23S, 145 19E; 7 (44).
 Waughs Pocket — NE.Q.; 17 26S, 145 57E; 7 (45).
 Wellington Pt — SE.Q.; 27 29S, 153 15E; 6 (91).
 Westwood — SE.Q.; 23 37S, 150 09E; 5 (82).
 Whitsunday I. — ME.Q.; 20 17S, 148 59E; 5 (47).
 Whittlesea — Vic.; 37 31S, 145 07E; 9 (52).
 Wilmot — Tas.; 41 23S, 146 10E; 2 (20).
 Windsor [M] — Vic.; 37 52S, 145 00E; 9 (30).
 Wollogorang [Hmsd] — N.T.; 17 13S, 137 57E; 3 (12).
 Woodridge — SE.Q.; 27 38S, 153 06E; 6 (92).
 Woodstock — NE.Q.; 19 36S, 146 50E; 5 (69).
 Woogaroo — SE.Q.; 27 40S, 152 53E; 6 (93).
 Woolooga — SE.Q.; 26 03S, 152 24E; 6 (94).

Wowan — SE.Q.; 23 55S, 150 11E; 5 (32).
 Wynnum [B] — SE.Q.; 27 27S, 153 10E; 6 (15).
 Wynyard — Tas.; 41 00S, 145 43E; 2 (21).

Yamala — SE.Q.; 23 35S, 148 22E; 5 (83).
 Yarra Junction — Vic.; 37 47S, 145 37E; 9 (53).
 Yarralumla nurseries [C] — A.C.T.; 35 20S, 149 10E; 8 (1).
 Yarraman — SE.Q.; 26 50S, 151 59E; 6 (95).
 Yass — N.S.W.; 34 50S, 148 55E; 8 (69).
 Yeppoon — ME.Q.; 23 08S, 150 44E; 5 (46).
 Yeringberg — Vic.; 37 41S, 145 27E; 9 (54).
 Yeronga [B] — SE.Q.; 27 31S, 153 01E; 6 (15).
 Yungaburra — NE.Q.; 17 17S, 145 35E; 7 (46).

Zeehan — Tas.; 41 53S, 145 20E; 2 (22).
 Zillmere [B] — SE.Q.; 27 22S, 153 02E; 6 (15).
 Z Lagoon to Litchfield — N.T.; 13 31S, 130 35E; 3 (13).

UNCERTAIN AUSTRALIAN LOCALITIES

Bendes (Q?).
 Caramby, Vic.
 Gruvers Garden (SE.Q?).
 Mt Farrenit (?) S. Aust.
 Rirney, S. Aust.

NON-AUSTRALIAN LOCALITIES

Baguio, Benguet, Luzon, Philippines.
 Basilan Island, Philippines.
 Blenheim, New Zealand.
 Buitenzorg, Java.
 California, U.S.A.
 Cuernos Mtns, Negros, Philippines.
 Koepang, Timor.
 Honolulu, Hawaii.
 Hong Kong.
 India.
 Java.
 Lord Howe I.
 Los Banos, Laguna, Luzon, Philippines.
 Manus, New Guinea.
 Mt Makiling, Luzon, Philippines (spelt Maquiling in reference).
 New Guinea.
 New Zealand.
 Ngredjo-Malang, Eastern Java.
 Nobo, nr Oengaran, Central Java.
 Norfolk I.
 Papua, S.E., New Guinea.
 Passoeroean, Java, Indonesia.
 Salatiga, Java.
 Singapore.
 Timor.
 Vancouver, British Columbia, Canada.

*Given as near Caboolture in Girault's unpublished manuscript.

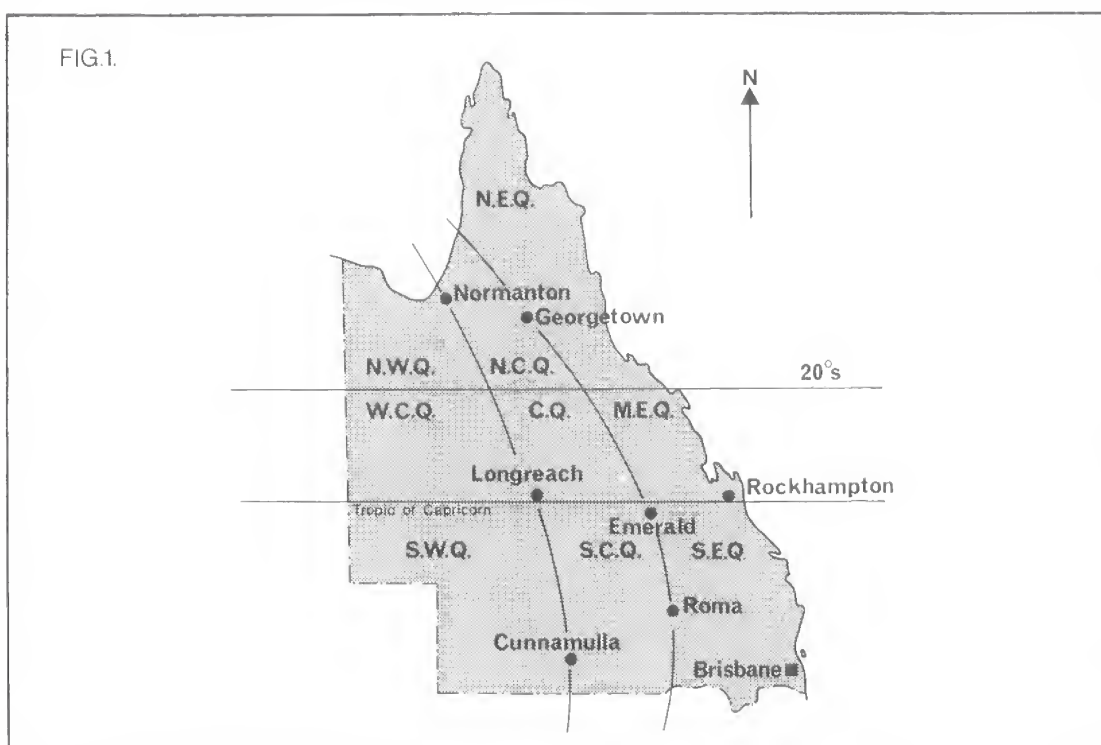


FIG. 1: Queensland, showing locality areas.

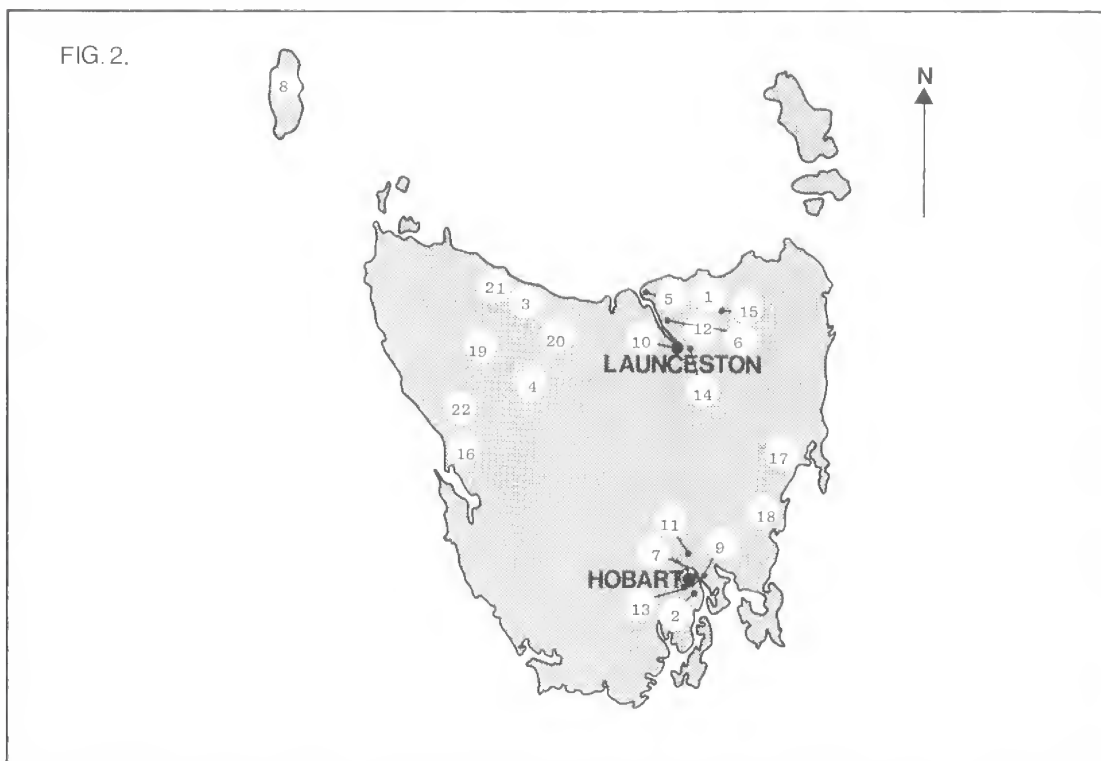


FIG. 2: Tasmania, showing Girault material localities.

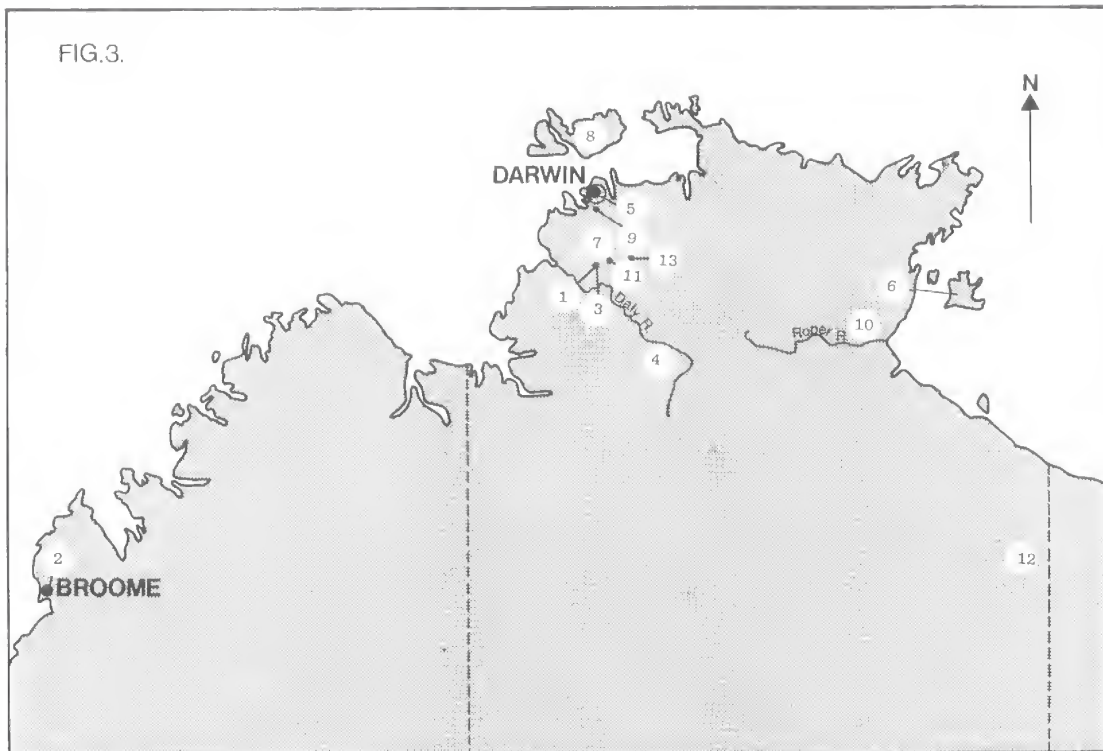


FIG. 3: Northern Territory, showing Girault material localities.

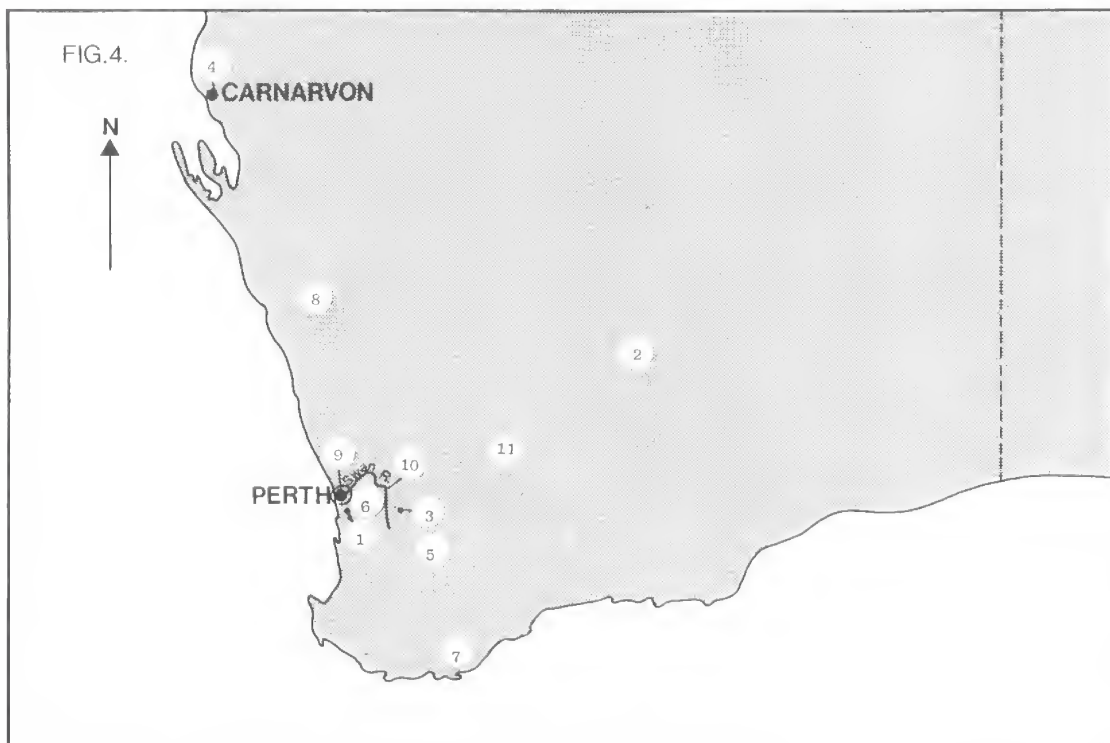


FIG. 4: Western Australia, showing Girault material localities.

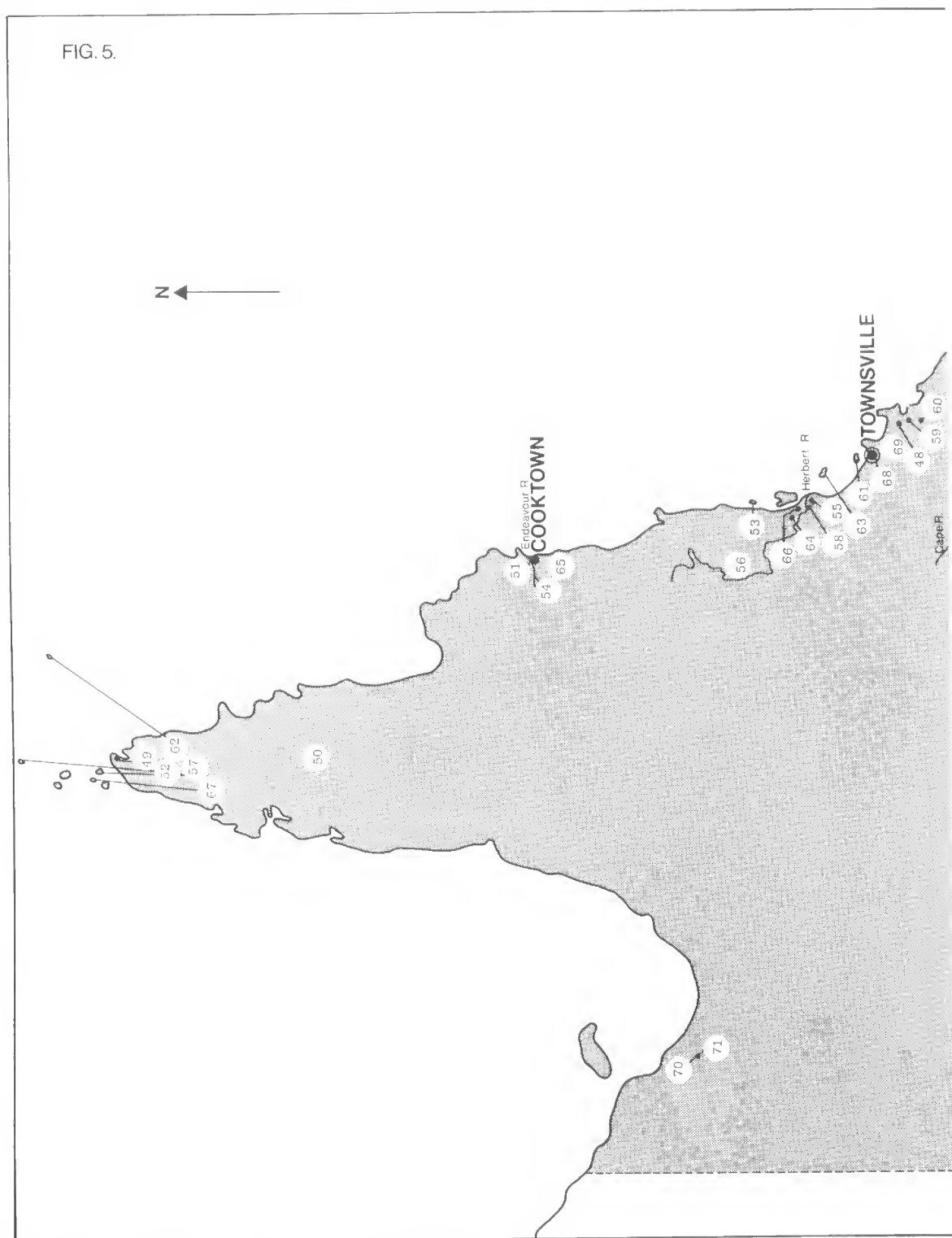
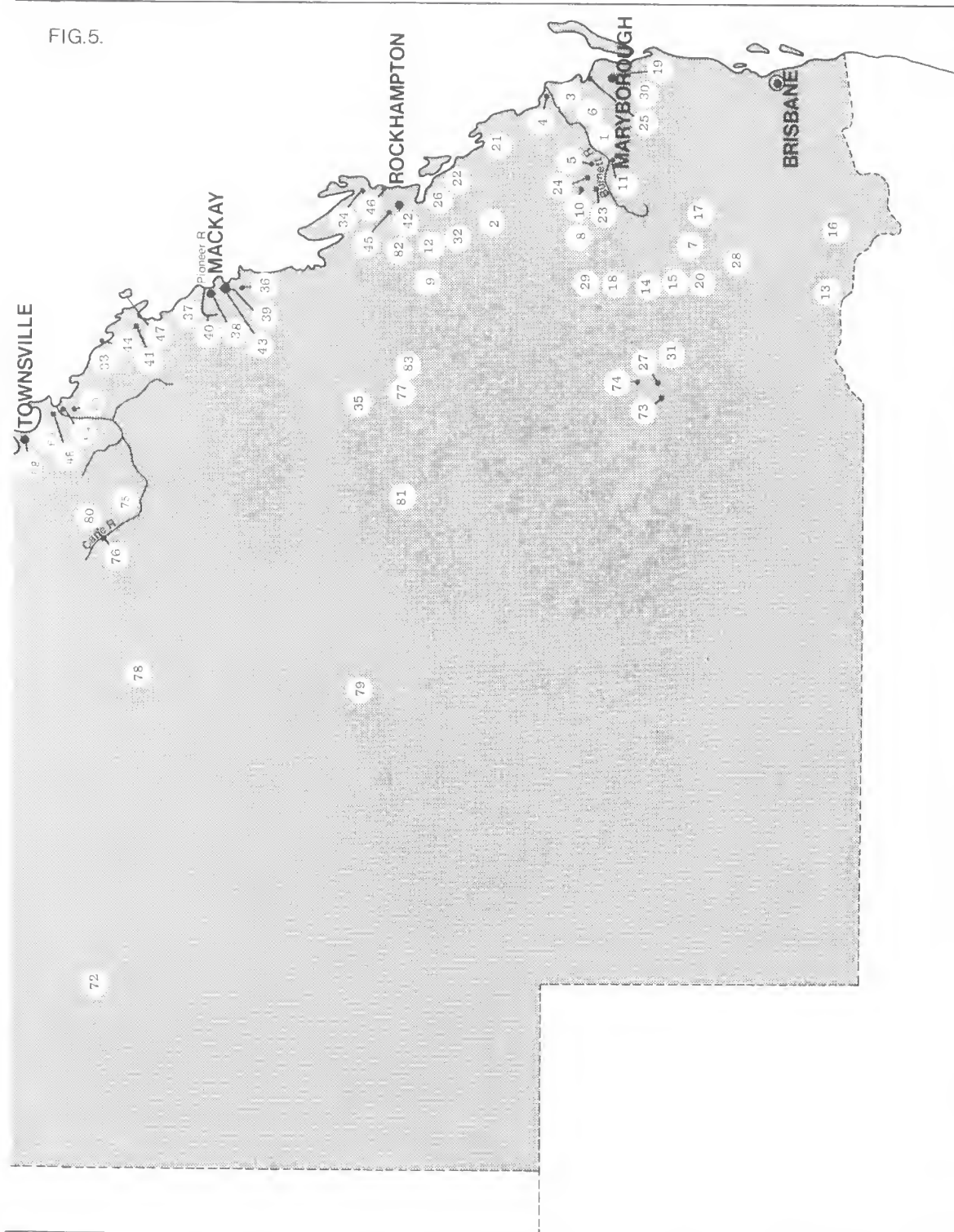


FIG. 5: Queensland, showing Girault material localities.

FIG.5.



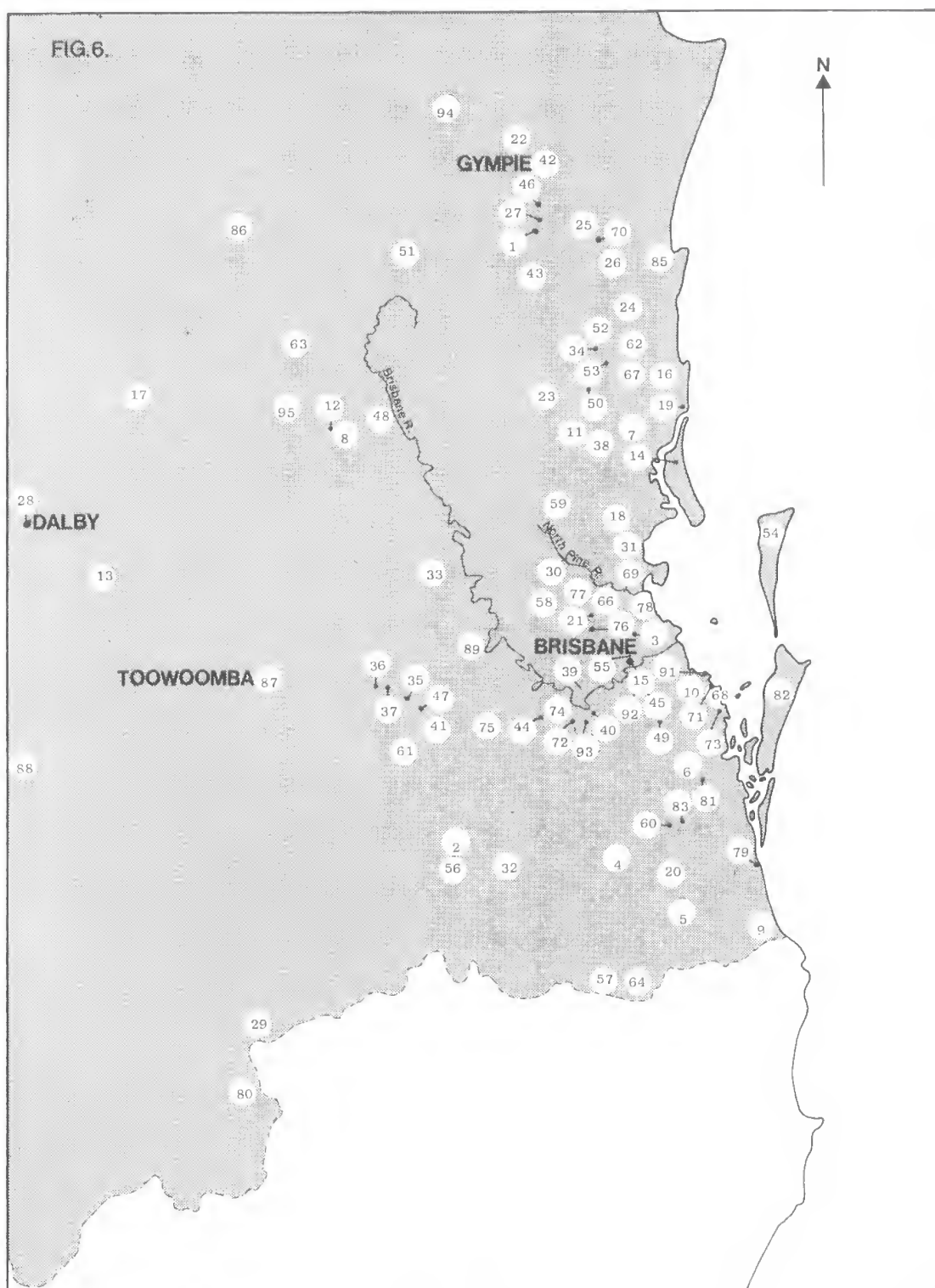


FIG. 6: South-east Queensland, showing Girault material localities.

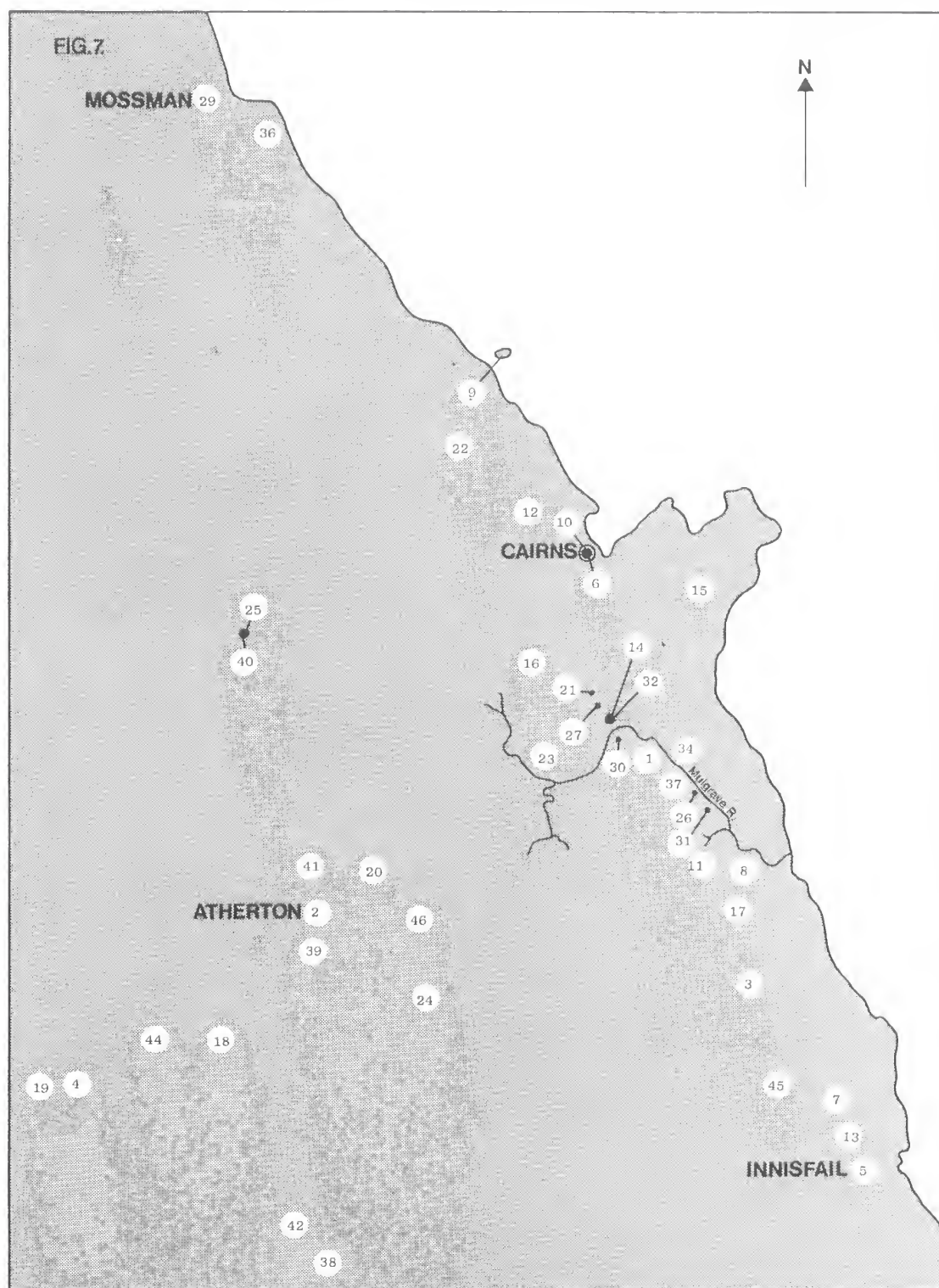


FIG. 7: North-east Queensland, showing Girault material localities.

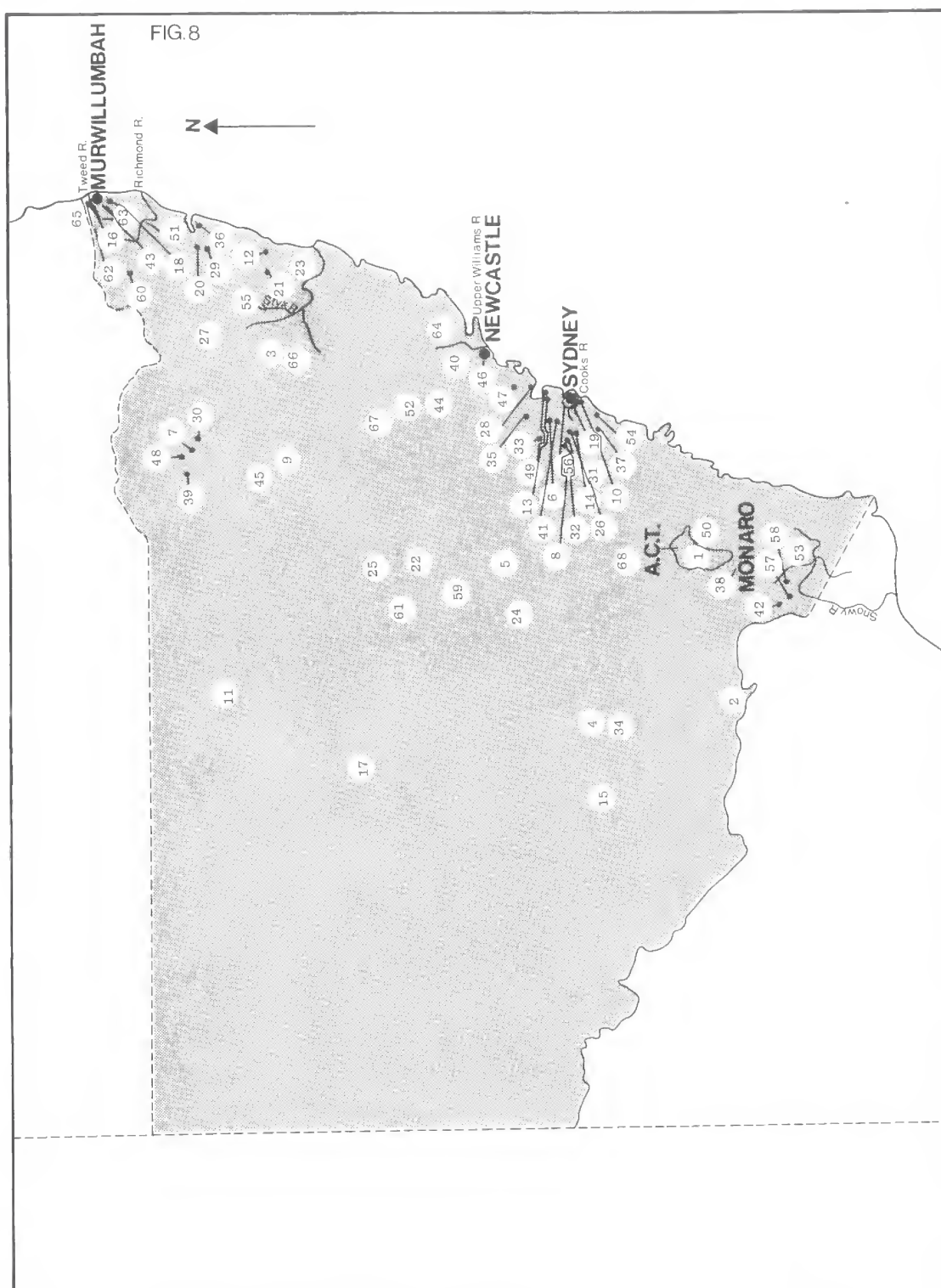


FIG. 8: New South Wales, showing Girault material localities.

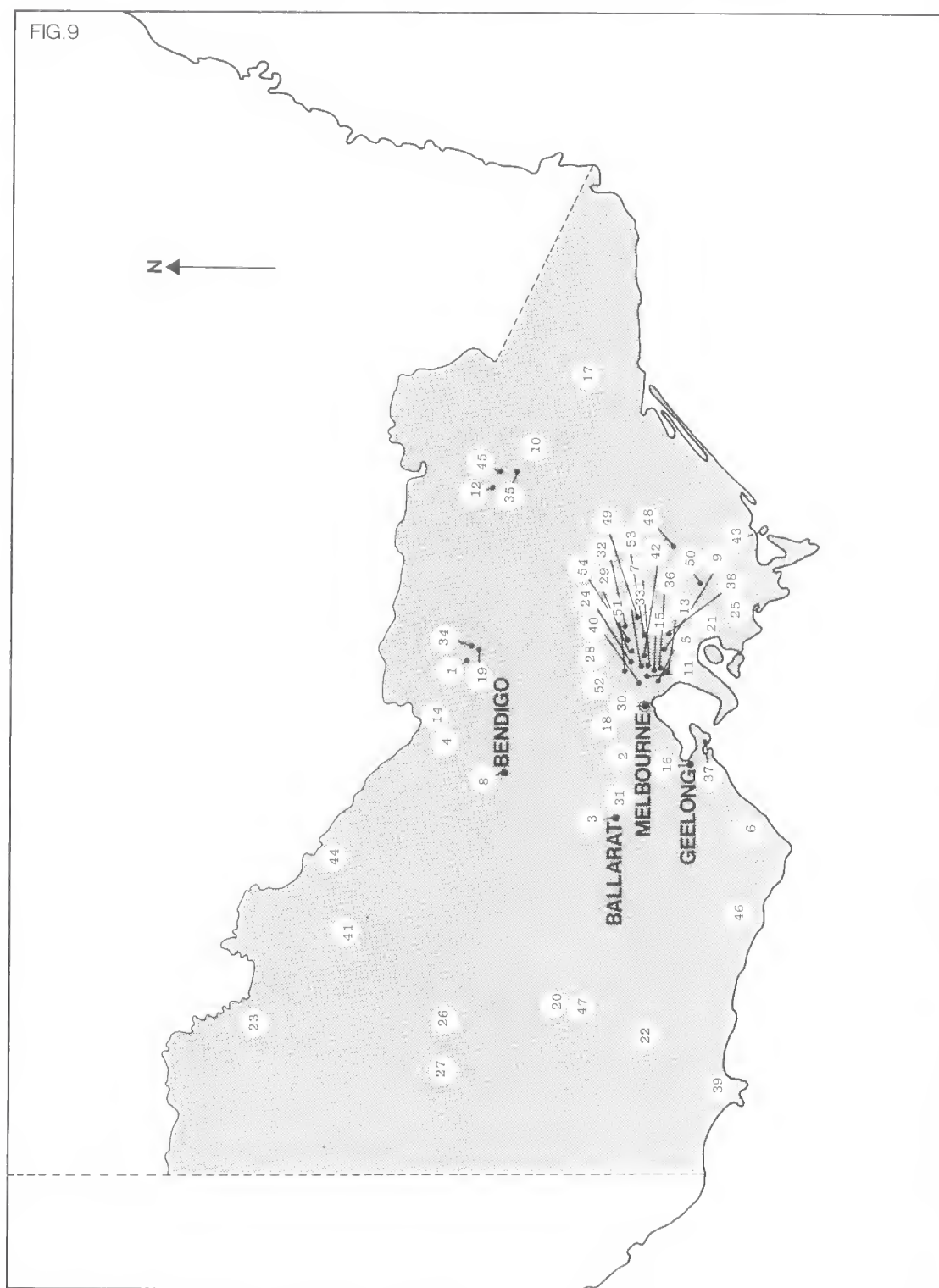


FIG. 9: Victoria, showing Girault material localities.

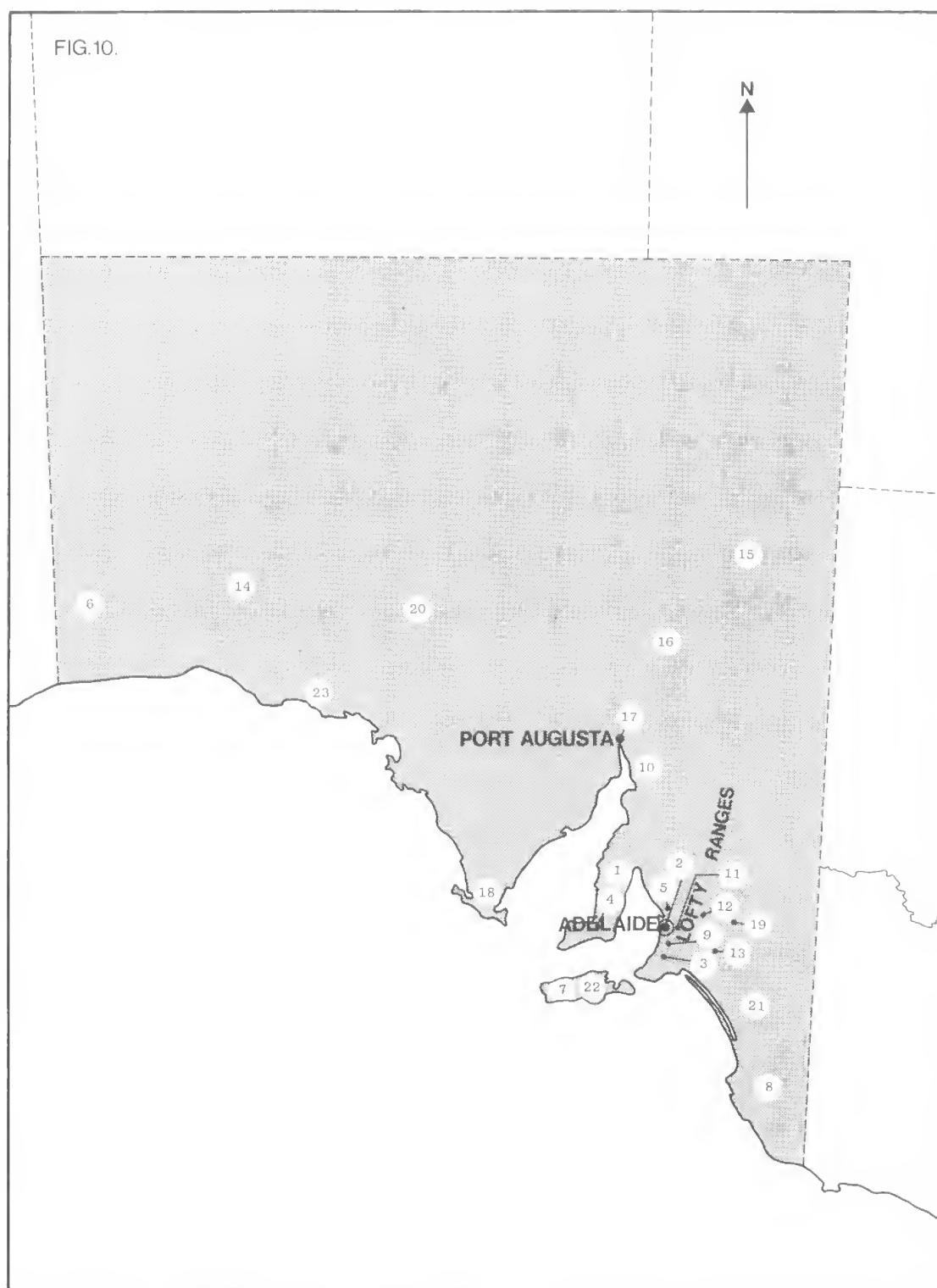


FIG. 10: South Australia, showing Girault material localities.



PLATE 14

- A. Gordonvale Sugar Experimental Station as it was in 1911 — 1916.
(*Qd agric. J.* **19**: 77, pl.25.)
- B. Mulgrave sugar mill, near Gordonvale, with Pyramid Mountain in the background. Early photographs of two of his collecting areas supplied by the Queensland Department of Primary Industries.
- C. Meringa Sugar Experimental Station as it was in 1918 — 1919 during Girault's period with Illingworth. Supplied by the Queensland Department of Primary Industries.

A



B



C



MEMOIRS OF THE QUEENSLAND MUSEUM

PLATE 15

A. A. Girault aged about 57 years just prior to his death in 1941.
(*Revta. Ent., Rio de J.* **13**: 439-43).







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